**RHODE ISLAND HEALTH CARE QUALITY PERFORMANCE MEASUREMENT AND REPORTING (HQPMR) PROGRAM**

# A Profile of Medicare Beneficiaries in Rhode Island: Quality of Care Compared to New England States and the Nation

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**Prepared by Qualidigm®**
**For the Rhode Island Department of Health**


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## EXECUTIVE SUMMARY

### A National Study of Health Care Quality

A national study of the quality of health care received by Medicare beneficiaries in the United States was published in 2000. The study reported on indicators of care for common and significant health problems of older Americans. The study measured care received by Medicare beneficiaries who were not enrolled in a managed care plan. This technical report focuses on the results for Medicare beneficiaries in Rhode Island. It compares our performance with the experience across the nation as a whole, and with each of the five other New England states.

In Rhode Island in 1999, over 17% of the population was aged 65 or older. The vast majority of persons 65 and older are Medicare beneficiaries, but in Rhode Island about one-fourth of these people are enrolled in managed care plans, so their experience is not represented in this report. Only Medicare beneficiaries not enrolled in a managed care plan were studied.

Indicators were selected to provide information about the quality of clinical care provided in the hospital setting for important common conditions: heart attack (acute myocardial infarction or AMI), congestive heart failure, stroke, and pneumonia. Other indicators were chosen to provide information about care provided in the outpatient setting (clinics and physicians' offices): continuous diabetes care, adult immunization and cancer detection.

### Rhode Island Performance on the National Study of Health Care Quality

Rhode Island performance is above the US average for nine indicators, about the same as the US average for seven indicators, and below the US average for six indicators. Overall, New England performance is above the US average for 20 indicators, and the same as the US average for two. The six indicators for which Rhode Island is below the US average are:

1) Smoking cessation counseling for heart attack patients who smoke.

2) Starting antibiotics within eight hours of arrival for patients with pneumonia

3) Assessing and responding to influenza immunization status of patients with pneumonia.

4) Assessing and responding to pneumococcal immunization status of patients with pneumonia.

5) Completing a lipid profile on persons with diabetes every two years, and

6) Administering pneumococcal vaccine to adults over 65 or having chronic disease statewide. (This indicator is not based on Medicare data, and is collected from a random-digit-dialing health interview survey.)

## Responding to the Findings

In response to the finding of this study, physicians, hospitals and other health care providers have been analyzing their own results and working on improving performance on all indicators, whether initial performance was above or below the averages. We expect that this process of continuous quality improvement will improve the quality of health care services that all Rhode Islanders receive. Since the indicators were selected because they measure significant elements of care for important health problems, it is important to improve performance on all the indicator events. The goal is the best achievable performance, not just being average.

Data on the same indicators will be collected for health services rendered between September 2000 and March 2001. Reports on performance on these indicators will be available some time in 2002.

This work is reported pursuant to the Rhode Island Health Quality Performance Measurement and Reporting Act of 1998. The report relies on data available from the US Health Care Financing Administration (Medicare beneficiary data) and the Rhode Island Department of Health (Behavior Risk Factor Survey data).

## Introduction

This report is the eighth in a series of technical reports issued in response to the Health Quality Performance Measurement and Reporting Program law. Passed in July 1998, this legislation requires reporting of the quality of care provided in all settings licensed by the Rhode Island Department of Health (HEALTH).

This report presents information about the quality of clinical care provided in the hospital setting, continuous diabetes care in the outpatient setting, and the use of selected outpatient services for the prevention or early detection of disease. The information provides a comparison of Rhode Island with each of the other five New England States and the nation as a whole. It focuses on the quality of care provided to Medicare patients. In 1999, over 17 % of the population in Rhode Island was aged 65 and older.[1] Medicare beneficiaries comprised 42% of the hospital discharges in the state in 1995.[2] Eighty-seven percent (87%) of the Medicare beneficiaries residing in Rhode Island are 65 years and older.

The data for this report are made available by the Health Care Financing Administration (HCFA), which administers the Medicare Program. HCFA initiated an effort in 1993, to identify indicators of the quality of care for conditions that affect a high volume of Medicare beneficiaries and result in high morbidity and mortality. They were also selected because there is a body of scientific evidence that supports processes of care (indicators), which result in good outcomes for these conditions, (i.e., lowering morbidity and mortality). These conditions were acute myocardial infarction or heart attack (AMI), congestive heart failure (CHF), stroke, atrial fibrillation (AFIB), pneumonia, adult immunizations, diabetes, and breast cancer.

In 1999, HCFA launched a national initiative to increase the use of these care processes, thereby improving the quality of care provided to FFS Medicare beneficiaries. To assess the impact of this initiative, HCFA uses data collected on each indicator (process of care) from a sample of medical records in each state for Medicare FFS patients hospitalized with AMI, CHF, pneumonia, stroke, and AFIB. For the outpatient indicators, HCFA uses claims and survey data for each state. There are two measurement periods: a baseline period with data collected prior to the launching of the initiative, and a remeasurement period with data collected one to two years following the launch. This report presents data for the baseline period since remeasurement data are not yet available. The baseline data were originally presented by HCFA in the Journal of the American Medical Association's (JAMA) October 4, 2000 issue in an article by Stephen Jencks et al, "Quality of Medical Care Delivered to Medicare Beneficiaries: A Profile at State and National Levels."

Specifically for the baseline period, records were abstracted for Medicare FFS patients discharged July 1, 1998 through December 31, 1998 for the inpatient conditions of interest. The remeasurement is planned for October 1, 2000 through March 31, 2001. For the outpatient conditions, the analysis periods are different. For the diabetes measures, claims for non Health Maintenance Organization (MCO) Medicare beneficiaries during the period April 1, 1997

[1] Reforming the Health Care System: State Profiles, 1999.
[2] Patterns of Hospital Inpatient Use in Rhode Island, 1995.

through March 31, 1999 were used in the calculations. Claims covering the two-year period of January 1, 1997 through December 31, 1998 for non-HMO female Medicare beneficiaries were used for the breast cancer screening measure. Finally, the Behavioral Risk Factor Surveillance System (BRFSS) conducted during 1998 was used for the immunizations measures. The survey includes both FFS and HMO Medicare beneficiaries.

During the period between the baseline and remeasurement, HCFA is contracting with the Peer Review Organization (PRO) in each state to collaborate with hospitals, physicians and other providers to refine their systems of care; this should result in improved rates for the quality indicators. The PROs are also reaching out to Medicare beneficiaries to inform them about the processes of care they can benefit from, particularly in the outpatient setting where the health status of an individual is highly dependent on following his/her physician's recommendations for the management of their diabetes, being immunized against the flu and pneumonia, and being screened for breast cancer. The PRO in Rhode Island is Rhode Island Quality Partners (RIQP).

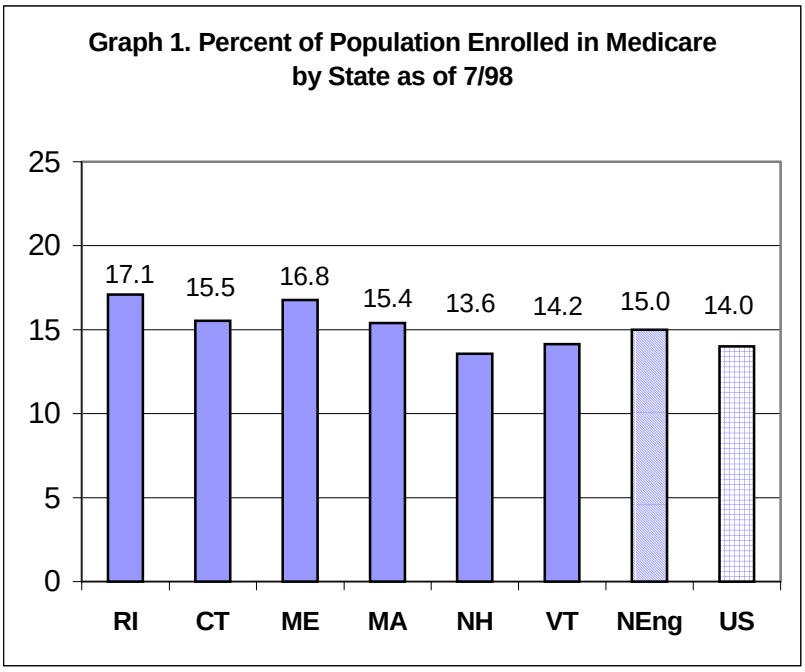
## Methods

Two types of information are presented in this report: I.) beneficiary profiles of enrollment, HMO participation and demographics; and II.) inpatient and outpatient quality indicators. The beneficiary enrollment information is reported as of July 1, 1998, which is the midpoint of the baseline measurement period. Comparisons are made among total number of beneficiaries, gender, age and race distribution and the rate of HMO participation. The second type of information is data by for each of the quality indicators by condition.

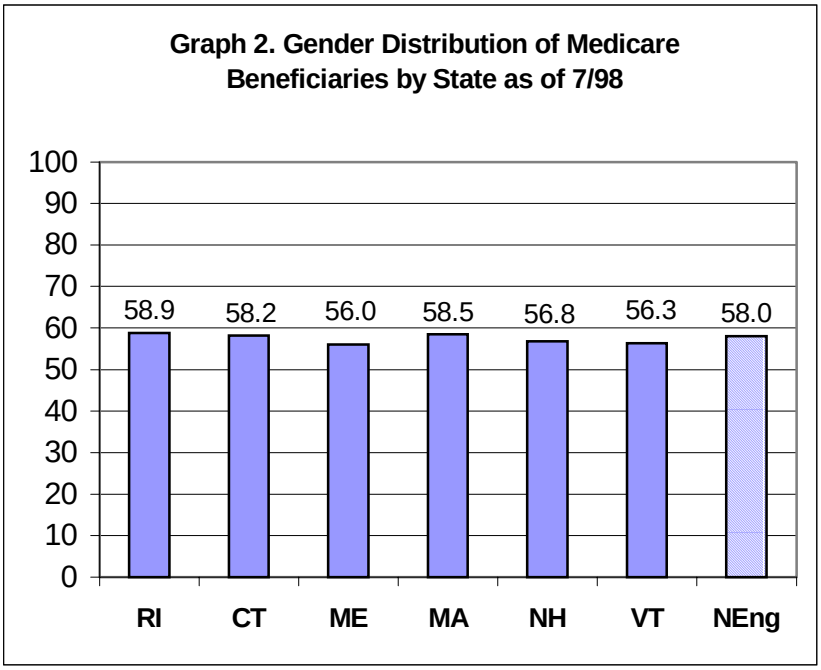
On the following pages, data describing the Medicare population in each of the New England States and the nation as a whole are presented. For all but the first graph, data are displayed in graphs using a 0 to 100 percent scale. Although some measures occupy only a limited portion of the scale, and others comprise nearly the entire graph, a standardized scale facilitates an accurate review of the data.

## Results

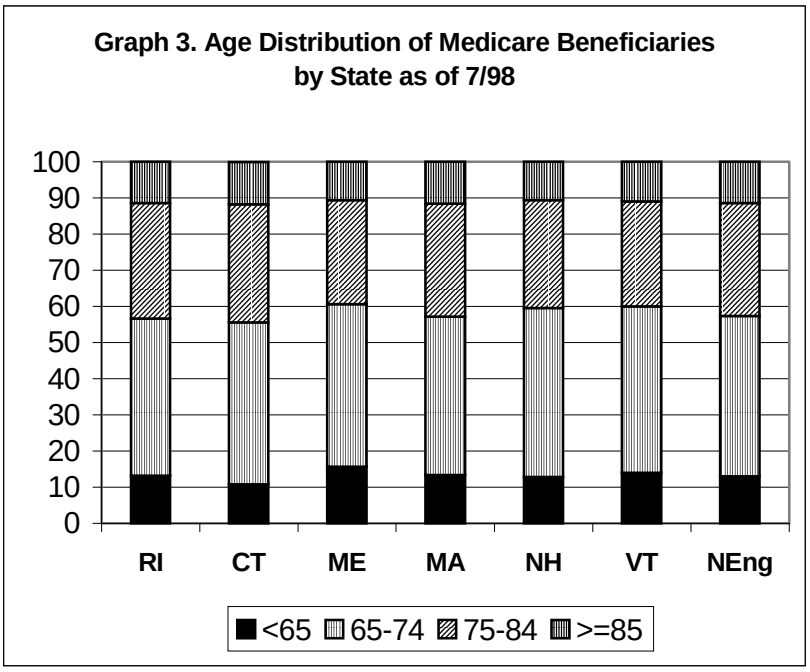
## I. Beneficiary Profiles



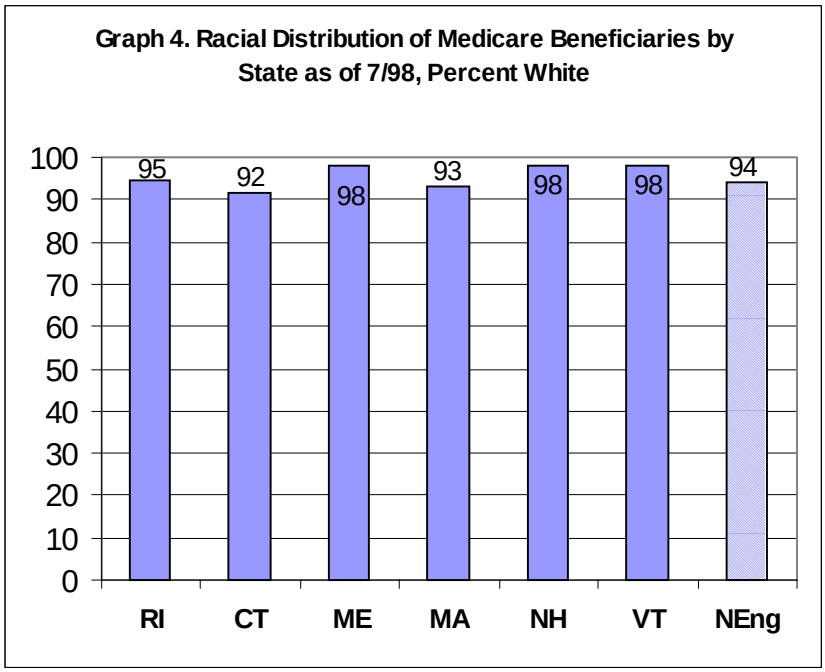

Graph 1 shows that as a proportion of the total population in each state, the percent of Medicare beneficiaries ranges from 13.6% in New Hampshire to 17.1% in Rhode Island. Given that approximately 170,000 Rhode Islanders were enrolled in Medicare in July 1998, these are meaningful differences since in general, older people use more medical services than younger people. Also older people enrolled in Medicare may be expected to have better access to medical services.



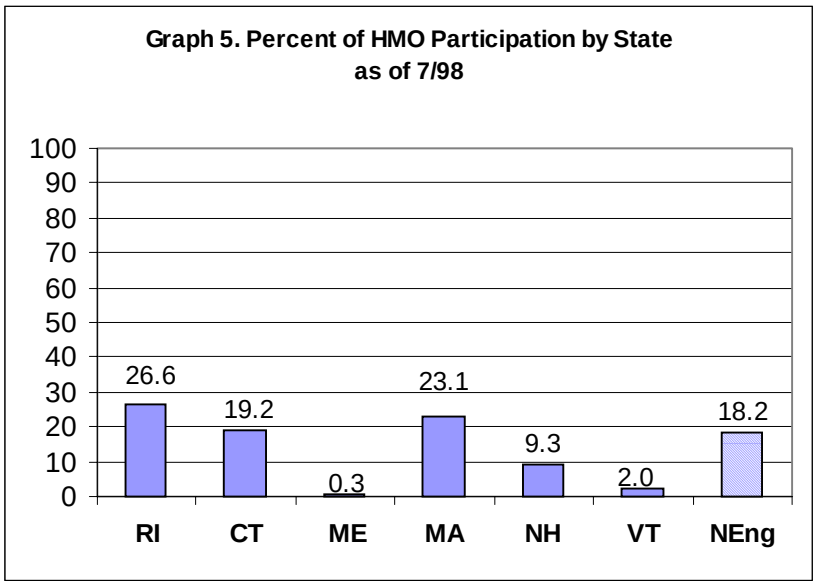

Graph 2 shows that the percent of women in the Medicare program in each state is similar, ranging from 56%-58.9%.




Graph 3 shows the age breakdown by four categories: under 65, 65 through 74, 75 through 84, and 85 and older. There is little variation among states in the age distribution. This is important because the oldest of the elderly tend to use the most services. Here we see that the age 65 and older population is similar across New England.




Graph 4 shows that the racial makeup of beneficiaries among the New England states varies from 92% to 98% White.




Graph 5 shows the percent of Medicare beneficiaries in each state who were in managed care plans as of July 1, 1998. Rhode Island has the highest managed care participation (26.6%) in the New England region, in contrast to Maine (0.3%), which has virtually no managed care participation. This is important when comparing among states, because the experience of Medicare beneficiaries in managed care organizations (HMO) is not included in the clinical information that follows. Those not in an HMO may tend to be older and sicker than those who are in an HMO.

These comparisons show that on the whole, there is very little difference among the states on key demographic variables. However, there are marked differences among states on the administrative variables, percent of population enrolled in Medicare and the rate of participation in HMOs. Importantly, the measures covered in this report apply only to fee for service (FFS) Medicare beneficiaries (with the exception of the statewide vaccination rates). We cannot conclude that the same findings would be true for the 20-25% of Rhode Island Medicare beneficiaries enrolled in managed care.

## II. Quality Indicators

The following section of the report presents quality indicator rates for each of the New England states compared to the national and New England averages. A review of the differences in the populations of each state was performed to ensure that demographically each state was similar. The results of these analyses showed that the sampled cases in each state had similar age, race and gender distributions for each condition.

### A. Inpatient Setting

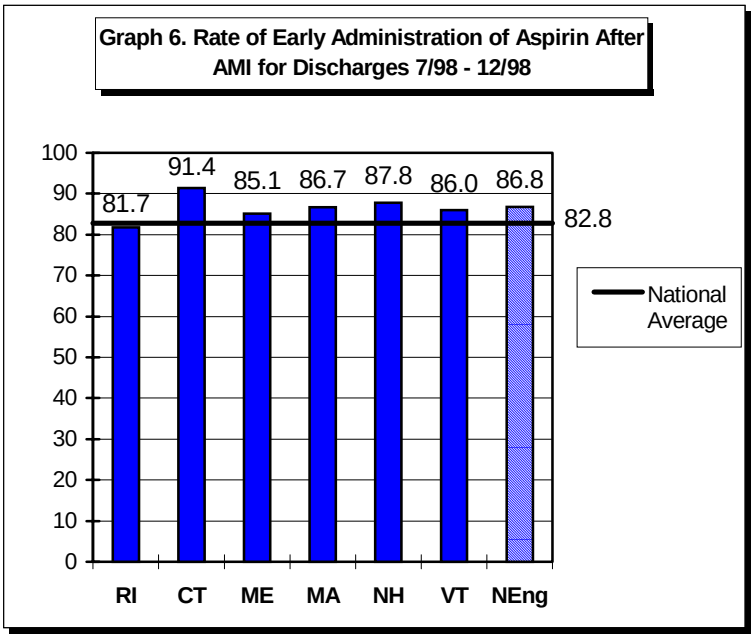
The first section provides information about care delivered in the inpatient setting.

#### Acute Myocardial Infarction

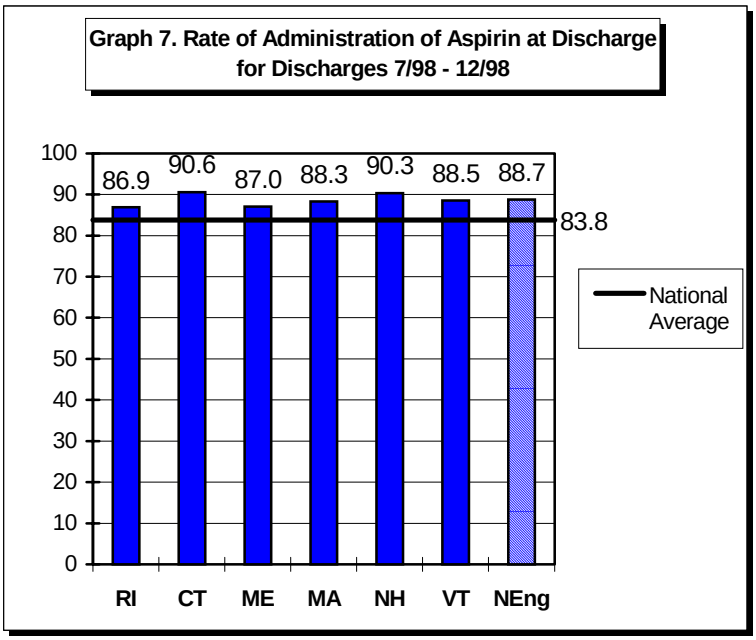
Every year, about one million people suffer a heart attack or AMI. AMI is among the leading causes of hospital admission for Medicare beneficiaries, age 65 and older. Seven evidence-based quality indicators were selected for measurement because they are key to the management of patients hospitalized for heart attack. The indicators include: early administration of aspirin;

early administration of beta-blocker; timely reperfusion; aspirin at discharge; beta-blocker at discharge; angiotensin-converting enzyme inhibitor (ACEI) at discharge for low left ventricular ejection fraction (LVEF); and smoking cessation counseling. It is expected that a high rate of performance on these quality indicators will lead to lower one-year mortality rates for Medicare beneficiaries following hospital admission for AMI. These therapies are consistent with American College of Cardiology and American Heart Association clinical guidelines.

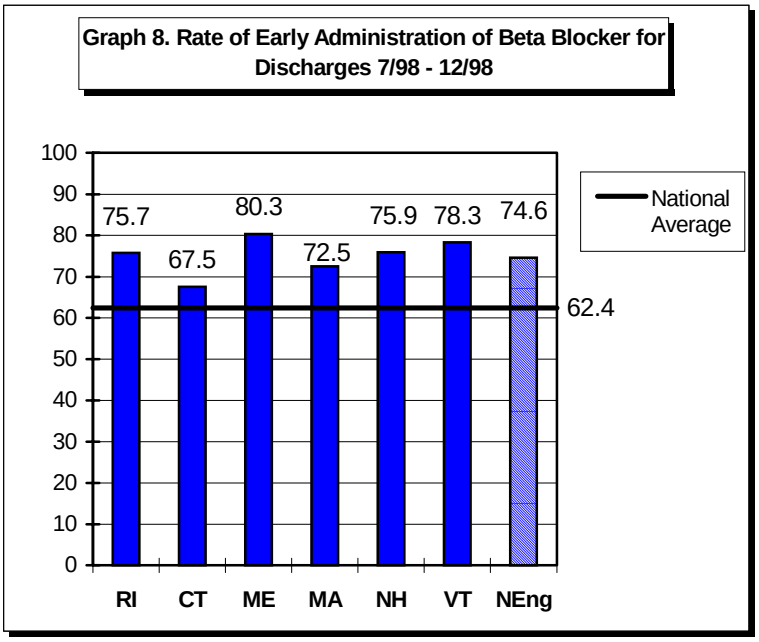
There were 572 confirmed AMI cases in the sample for the baseline measurement period in Rhode Island. Only "ideal" patients, or those who had indications for each therapy and none of the contraindications, are included in these measures. For a list of indications/contraindications by therapy, see Appendix A.



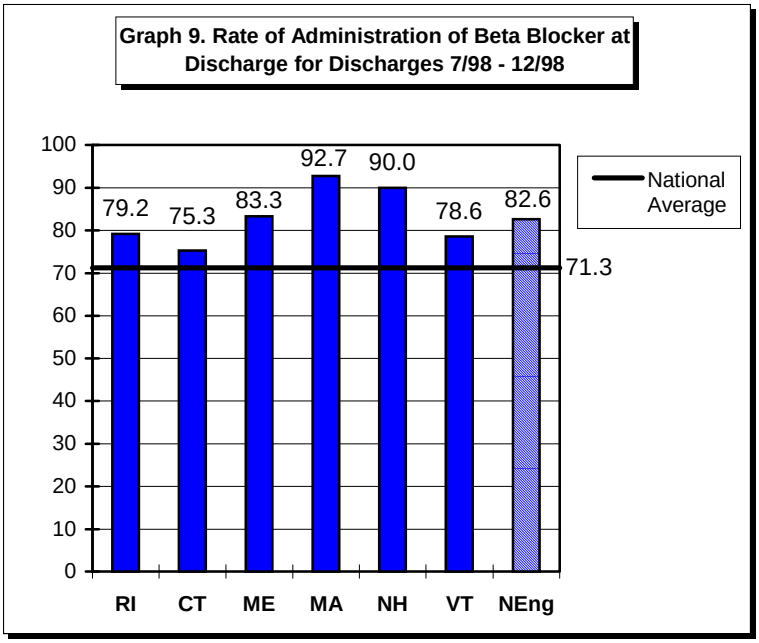

The rate for early administration of aspirin in Rhode Island (81.7%) is significantly lower than Connecticut (91.4%), but similar to the national average (82.8%).



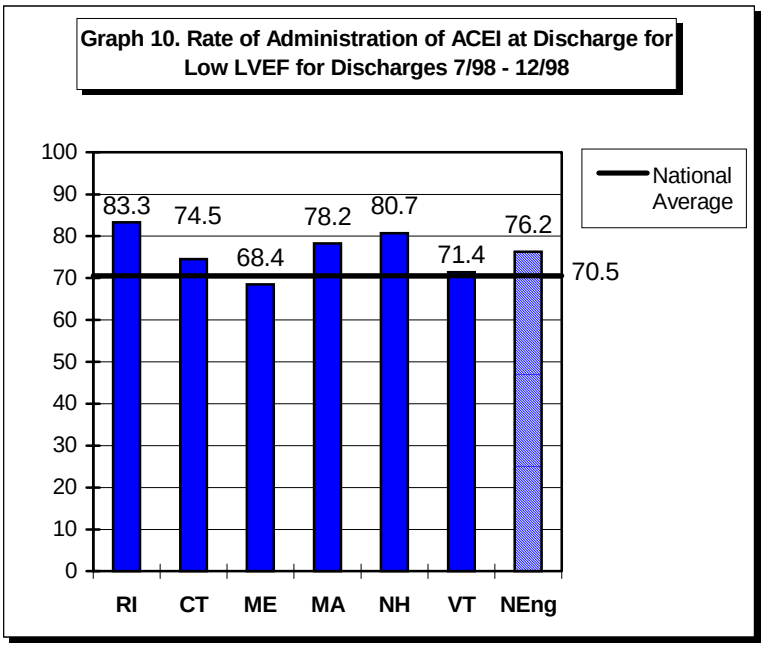

The rate of administration of aspirin at discharge in Rhode Island (86.9%) is similar to the New England average (88.7%). The national average (83.8%) is significantly lower than the New England average.



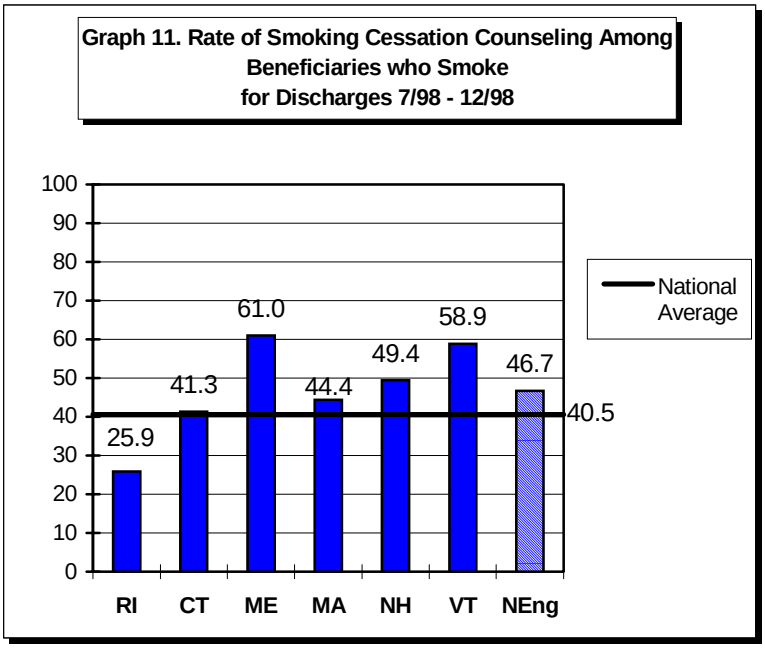

For early administration of beta blockers, Rhode Island is at 75.7%, which is significantly higher than the national average (62.4%).




Rhode Island's rate (79.2%) is above the national average (71.3%) for administration of beta blocker at discharge. The New England States' average (82.6%) is significantly higher than the national average (71.3%).




The Rhode Island rate on the administration of ACEI is 83.3% and the national average is 70.5%. The New England average (76.2%) is significantly higher than the national average.




Beneficiaries who are hospitalized with an AMI and who smoke, should be counseled about quitting before they are discharged. Although the New England rate (46.7%) is significantly higher than the US rate (40.5%), the Rhode Island rate of offering and/or documenting this counseling is significantly lower than the nation as a whole.

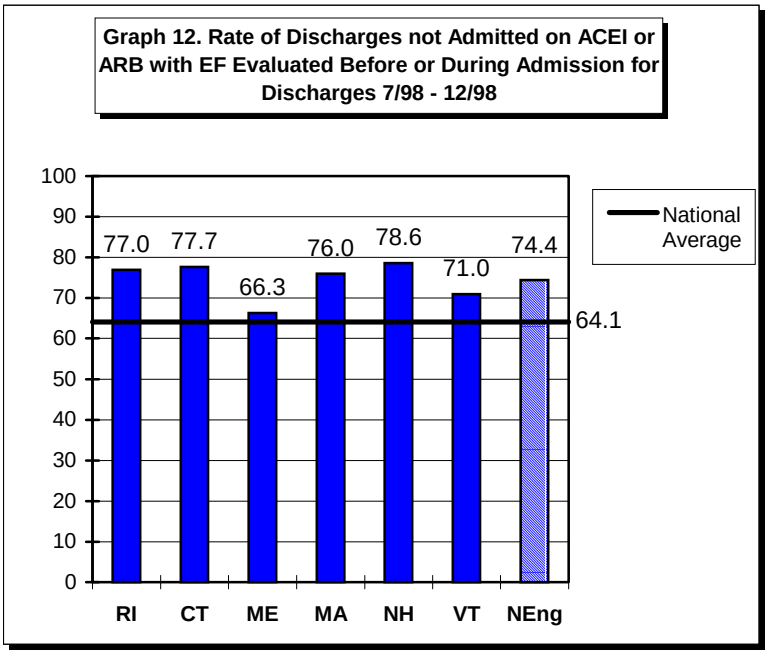
## Heart Failure

Heart failure is a common disease in the elderly, accounting for more hospital admissions than any other diagnosis for inpatients over the age of 65. Interestingly, the prevalence of heart failure appears to be rising as the population ages, while mortality due to heart failure is declining. In addition, 20 to 30 percent of elderly patients with heart failure will die within one year and others will have significant functional limitations. Estimates of annual expenditures to treat heart failure in the United States are astonishing, ranging from $10 billion to $40 billion.

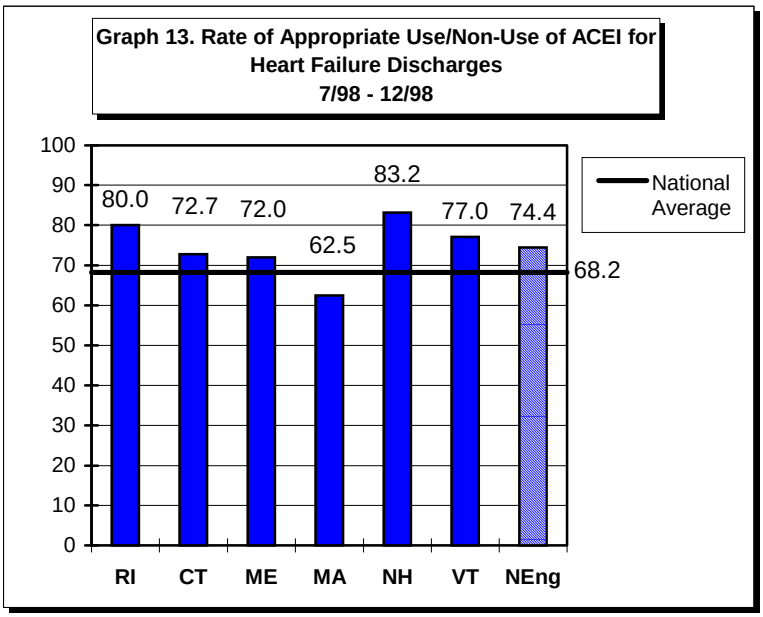
The cornerstone of proper medical treatment for CHF is the prescription of an ACEI in patients with heart failure due to left ventricular systolic dysfunction (LVSD). This practice recommendation has been defined in guidelines issued by two groups: the Agency for Health Care Policy and Research (AHCPR), and a joint committee of the American Heart Association and the American College of Cardiology (AHA/ACC). A variety of surveys published between late 1980 and mid 1990 demonstrated ACEI rates between 36 and 40 percent. More recent surveys suggest this rate may have risen to over 70 percent.

There are two quality indicators in this report associated with heart failure: 1. The proportion of heart failure patients who were not taking ACEI or angiotensin receptor blocker (ARB) at admission who had their ejection fraction (EF) evaluated before or during admission. 2. The proportion of patients who were not taking ACEI or (ARB) at admission and who have documented LVSD, who are discharged on ACEI or have a documented reason for not taking ACEI.

There were 711 confirmed CHF cases in the baseline measurement sample in Rhode Island. Performance on the CHF indicators among ideal candidates is presented in graphs12 and 13. For a list of indications and contraindications see Appendix A.




Rhode Island ranks third (77%) among the New England states for EF evaluated. New England (74.4%) is significantly higher than the national average (64.1%).



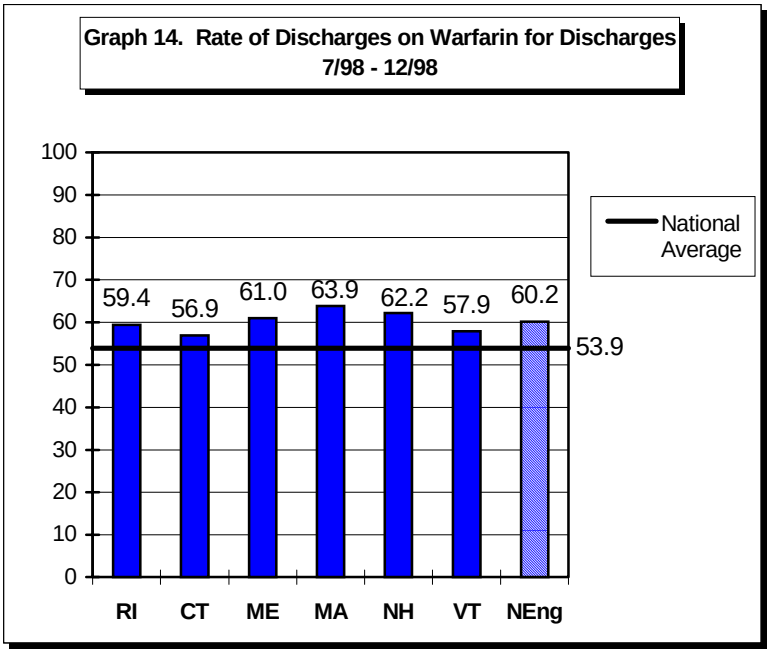

Rhode Island ranks second (80%) in New England for this indicator. The New England average (74.4%) is marginally higher than the national rate (68.2%).

## Stroke/Atrial Fibrillation

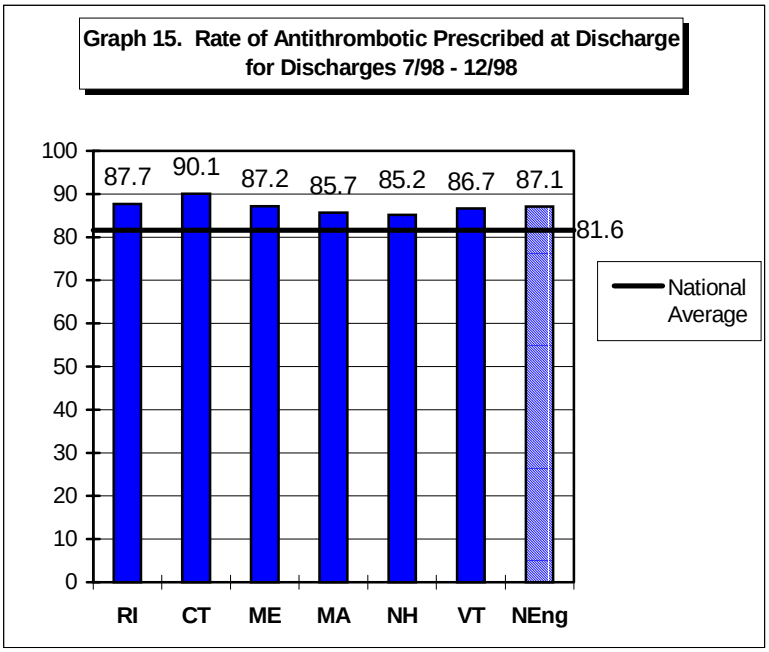
Stroke is the third leading cause of death in the United States, as well as one of the leading causes of serious, long-term disability. Approximately 600,000 new strokes are documented annually in the United States, and it is estimated that carotid artery disease may be responsible for 20 to 30 percent of them. For people over age 55, the incidence of stroke more than doubles in each successive decade. About 29 percent of people who have an initial stroke die within a year. This percentage is higher among people age 65 and older. Among the risk factors for Transient Ischemic Attack (TIA)/stroke, the most important is a prior TIA or stroke, either of which carries a tenfold increase in risk. In addition, the presence of AFIB increases stroke risk by six times.

Data for Americans aged 40 and older showed the average in-hospital and physician costs were $11,010 for a stroke and $4,940 for a TIA in 1995. According to data from the HCFA, $3.7 billion (about $5,718 per discharge) was paid for Medicare beneficiaries with stroke in 1995. Researchers supported by the AHCPR found that expanded use of warfarin (blood thinning or anticoagulation medication) could reduce by half the 80,000 strokes each year due to AFIB and estimated that proper anticoagulation therapy could save approximately $600 million annually.

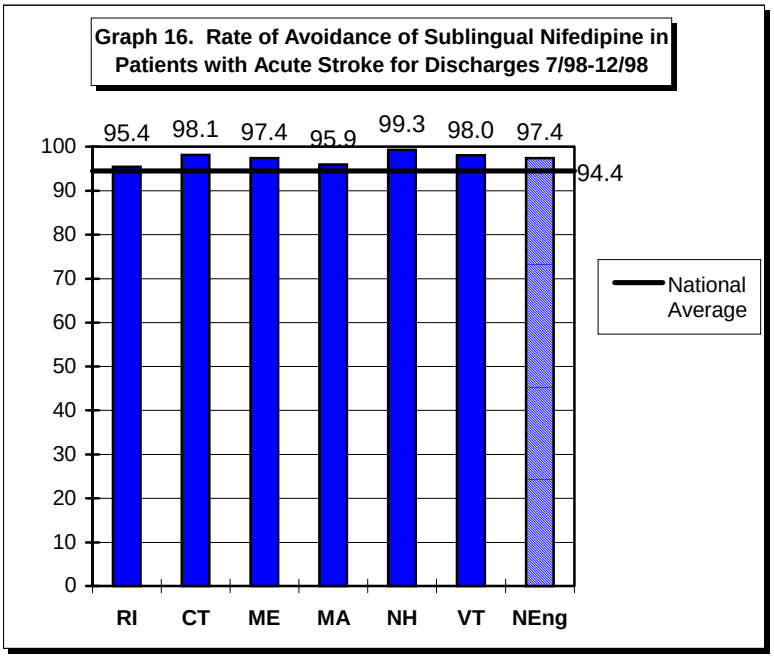
HCFA selected three indicators, which, if increased, could have major positive impact on stroke prevention in this country. The indicator for AFIB is the proportion of eligible discharges without contraindications who are prescribed warfarin at discharge. For TIA/stroke the measures are: antithrombotic prescribed at discharge and avoidance of sublingual nifedipine in patients with acute stroke. The data for the quality indicators below represent FFS Medicare patients with indications for the therapy and no contraindications. For a list of the contraindications, see Appendix A.




The Rhode Island rate (59.4%) is consistent with the New England average (60.2%). The New England average is significantly higher than the national average (53.9%).




The Rhode Island rate (87.7%) for anti-thrombotic medications at discharge for stroke patients is similar to the other New England states. The New England average (87.1%) is significantly higher than the national average (81.6%).




The data for Rhode Island indicate a 95.4% rate of avoidance of sublingual nefedipine for hypertensive stroke patients, similar to the other New England states. The New England average (97.4%) is significantly higher than the national average (94.4%).

## Pneumonia

Pneumonia and influenza are the sixth leading causes of death in the United States. Each year approximately 600,000 Medicare patients are hospitalized utilizing more than 4.2 million inpatient days.[3] Pneumonia is also the principal reason for more than 500,000 emergency department visits by Medicare patients each year. The incidence of pneumonia increases with age, and approximately 90% of deaths due to this condition are in the population aged 65 and older.

HCFA selected three indicators to assess the quality of care provided to patients admitted to the hospital for treatment. The selection was made by an expert panel based on a review of medical evidence. The three indicators are:

1) The proportion of patients who receive the initial antibiotic dose within 8 hours of hospital arrival
2) The proportion of patients given an initial antibiotic consistent with current recommendations
3) The proportion of patients who have blood cultures collected before antibiotics administered

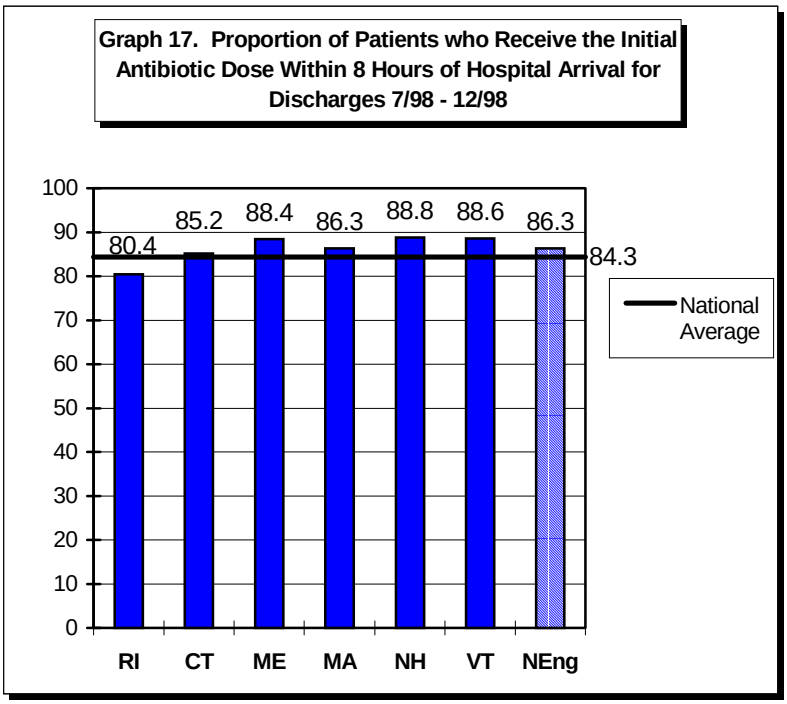
There is a demonstrated relationship between early antibiotic administration and lower 30-day mortality. Previous studies evaluating the impact of changing processes of care including the administration of antibiotics within 4 hours of hospital admission for patients with community-acquired pneumonia have demonstrated this relationship. Most recently, data from HCFA's

[3] Marston BJ, Plouffe JF, File TM, et al. Incidence of community-acquired pneumonia requiring hospitalizations: results of a population-based active surveillance study in Ohio. Arch Intern Med. 1997;157:1709-1718.

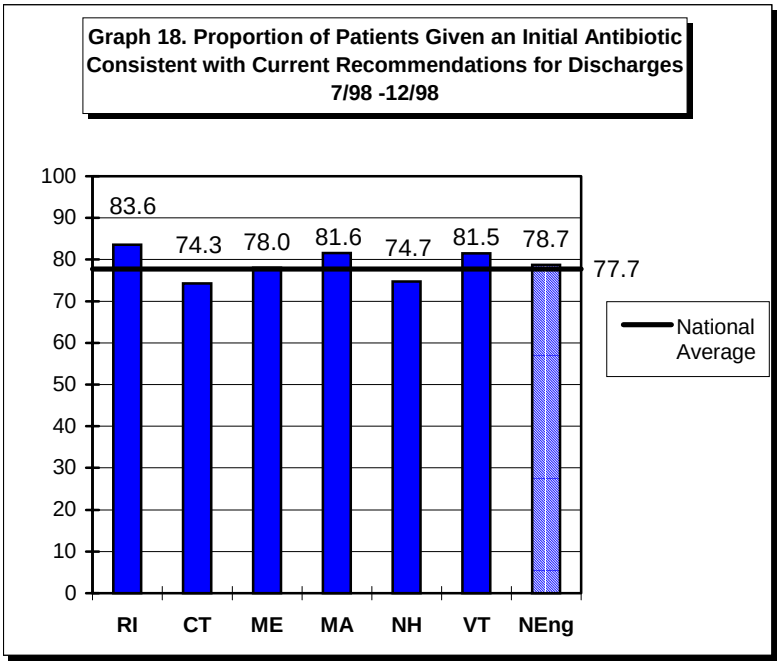
Medicare Quality Indicator System (MQIS) pneumonia project revealed a 15% lower chance of death within 30 days of admission when antibiotics were administered within 8 hours of hospital arrival.

There is also an association between appropriate use of blood cultures and a lower 30-day mortality rate, as demonstrated in data from the MQIS pneumonia module project. Finally, routine blood cultures are recommended in guidelines for management of community-acquired pneumonia published by the American Thoracic Society (ATS) and the Infectious Diseases Society of America (IDSA).

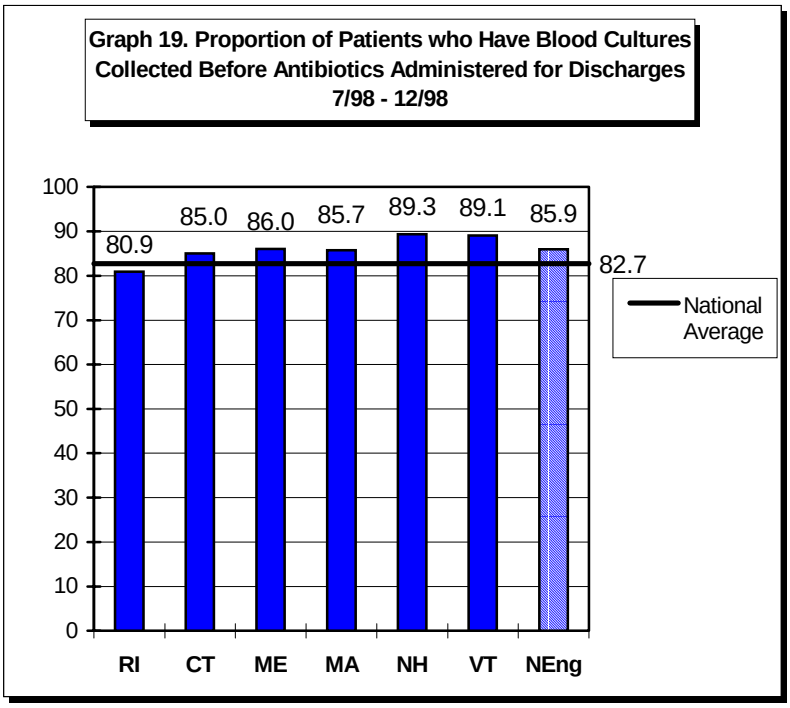
Selecting the right antibiotic to provide appropriate treatment for Streptococcus pneumoniae and to treat atypical organisms in patients who require admission to an intensive care unit is also essential. Analysis of outcomes for patients in the MQIS pneumonia project demonstrated significant reduction in mortality for patients treated with antibiotic combinations that were effective against both pneumococcus and atypical organisms. In addition, the incidence of penicillin-resistant strains of pneumococcus has increased during the past decade. Empiric antibiotic therapy to cover potentially resistant strains of Streptococcus pneumoniae and atypical organisms for patients admitted to the intensive care unit is recommended. The data below represent non-HMO Medicare beneficiaries hospitalized with pneumonia.




The average rate of timely antibiotic administration in Rhode Island (80.4%) is significantly lower than the rates in Maine (88.4%), New Hampshire (88.8%) and Vermont (88.6%) and the New England (86.3%) average. The New England and national averages are similar.




The Rhode Island rate (83.6%) for the selection of initial empiric antibiotic consistent with current recommendations is significantly higher than Connecticut (74.3%) and New Hampshire (74.7%), as well as New England (78.7%) and the nation (77.7%).




The Rhode Island rate (80.9%) for the proportion of blood cultures collected before antibiotics are administered is significantly lower than New Hampshire (89.3%) and Vermont (89.1%). The New England average (85.9%) is higher than the national (82.7%) average.

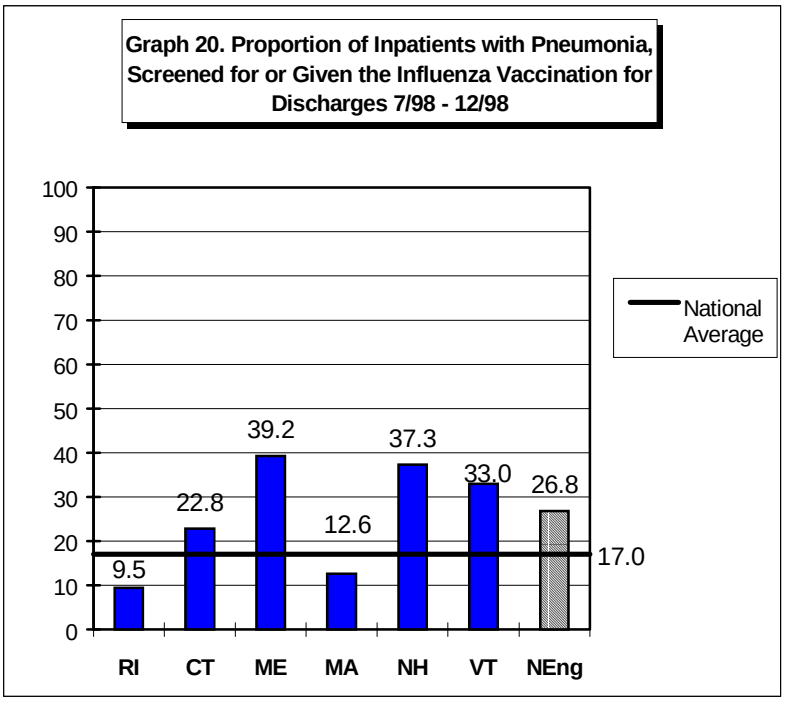
## Adult Immunization

As discussed in the section on pneumonia, pneumonia and influenza are the sixth leading causes of death in the United States. Each year, approximately 600,000 Medicare patients are hospitalized utilizing more than 4.2 million inpatient hospital days.

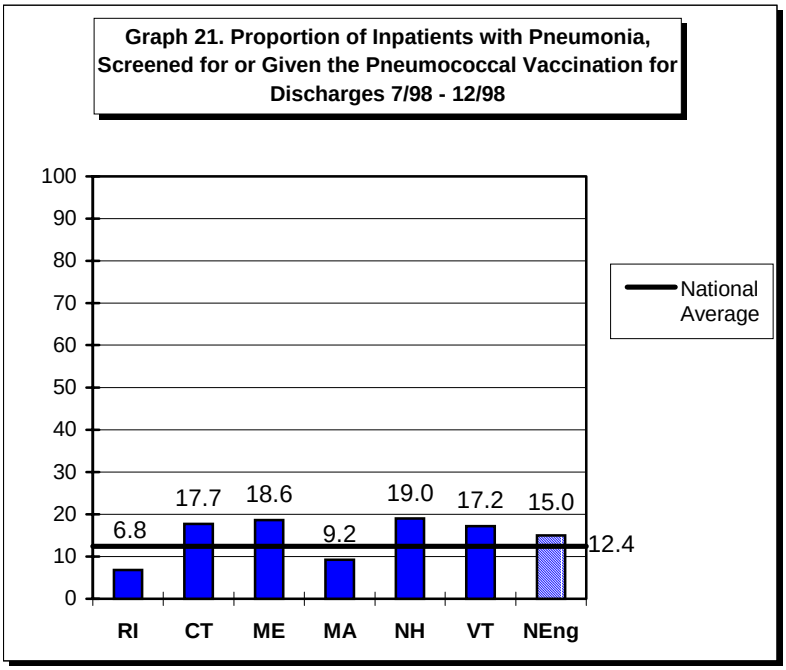
In spite of the fact that influenza and pneumococcal vaccine are effective and are paid for by Medicare Part B, they remain underutilized. Therefore, HCFA has selected the vaccination of outpatients and of inpatients prior to hospital discharge as indicators to be increased for its national quality improvement campaign. These are shown below:

1) The proportion of inpatients with pneumonia screened for or given influenza vaccination

2) The proportion of inpatients with pneumonia screened for or given pneumococcal vaccination.




The Rhode Island rate of 9.5% and the rate in Massachusetts (12.6%) are both below the New England (26.8%) average on the percent of inpatients with pneumonia screened for or given the influenza vaccination.



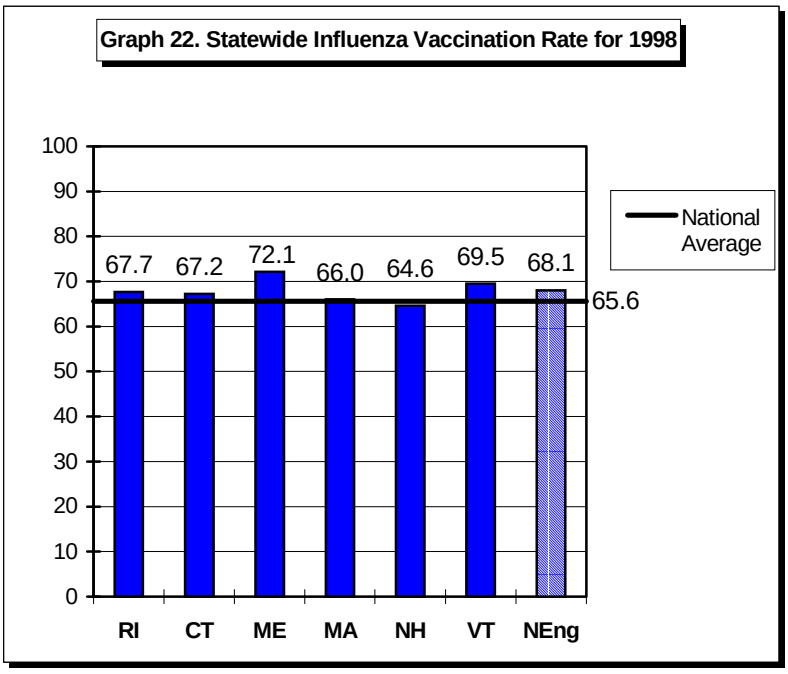

The rate of Rhode Island's inpatients with pneumonia who were screened for or given the pneumococcal vaccination is 6.8% which is significantly lower than the New England average (15%).

## B. Outpatient Setting

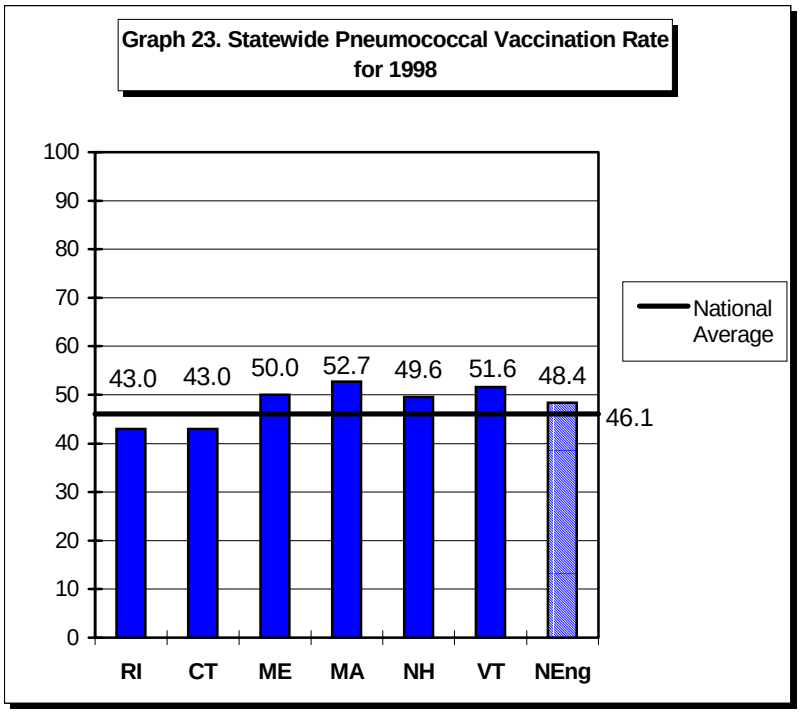
The results presented in the section that follows concern care delivered in the outpatient setting.

### Adult Immunization

Statewide data for influenza immunization and pneumonia are reported from BRFSS, conducted annually in each state. The survey includes both HMO and non-HMO Medicare beneficiaries.




The statewide rate of influenza vaccination in Rhode Island is 67.7%, consistent with the New England average (68.1%).




The Rhode Island pneumonococcal vaccination rate is 43% which is significantly lower than the New England average of 48.4%.

## Breast Cancer

Breast cancer is the most common cancer in women and the second leading cause of cancer death for women in the United States, with an estimated 175,000 new cases and 43,700 deaths in 1999. Current estimates are that one in eight women will develop breast cancer in her lifetime.

Breast cancer and associated comorbidities and mortality become more prevalent with increasing age. More than half of breast cancers occur in women 65 years and older. The annual risk of developing breast cancer is approximately one in 3,700 for women aged 30-34, which increases to 1 in 235 for women aged 70-74. The age-specific incidence rates of invasive breast cancer have risen between 2 and 5 percent annually during the last two decades, although death rates have remained relatively stable.

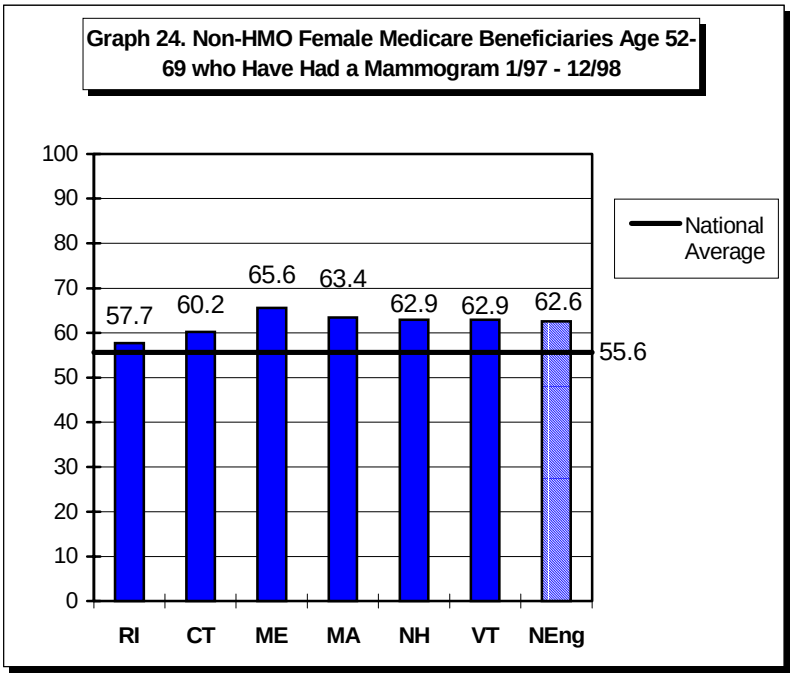
Mammography is the best method of diagnosing breast cancer, with an estimated ability to detect abnormalities between 60% and 95%. Results of randomized controlled trials in the United States and Europe clearly indicate that use of regular screening mammography can reduce breast cancer mortality by 20% to 40% for women aged 50 years and over. Based on combined results (meta-analysis) of 13 studies reported from 1966 to 1993, it appears that judicious utilization of mammography can prevent approximately one-fourth of breast cancer deaths. Mortality from breast cancer is strongly associated with stage of cancer at diagnosis. Women whose cancer is detected at earlier stages have better prognoses. The five-year survival rate for women with (localized) early stage disease is 97%. Survival rates drastically drop to 20% for women whose cancer has spread beyond the breast and lymph nodes.

The organizations and agencies that have developed clinical practice guidelines and recommendations concerning mammography utilization include the American Academy of Family Physicians (AAFP), American College of Obstetricians and Gynecologists (ACOG), American College of Radiology (ACR), American Cancer Society (ACS), American Medical Association (AMA), National Cancer Institute (NCI), and the United States Preventive Services Task Force (USPSTF). The ACR, ACS, and AMA recommend annual mammograms for women over the age of 40. The NCI recommends mammograms every 1 to 2 years for women over the age of 40. The ACOG recommends mammograms every 1 to 2 years for women aged 40 to 49 and annual mammograms for women over age 50. Mammograms every 1 to 2 years are recommended by the USPSTF and AAFP for women aged 50 to 69. The USPSTF indicates that there is insufficient evidence to recommend for or against screening of women 70 years of age or older, although recommendations for this can be made on other grounds for women in this age category with a reasonable life expectancy.

Based on a review of the studies and guidelines discussed above, HCFA selected one quality indicator for breast cancer:

1) The percentage of non-HMO female Medicare beneficiaries aged 52-69 (at the end of the time period) who have had a mammogram (screening or diagnostic) during a 2-year period.

This indicator is calculated from Medicare claims data for non-HMO Medicare beneficiaries during the period January 1, 1997-December 31, 1998.




The Rhode Island rate of 57.7% is significantly lower than the New England average (62.6). The New England average is higher than the national average (55.6%).

## Diabetes

Diabetes is a major public health problem and is becoming more prevalent in all age groups. The increasing prevalence is attributed both to higher detection and to poorer health habits (with increased rates of obesity the primary culprit).

According to the self-reported National Health Interview Survey (NHIS), the prevalence of Type II diabetes is 1% at 18-44 years, 6% at 45-64 years, and 10% for those aged 65 and older. Based on oral glucose testing in the National Health and Nutrition Examination Survey, there is one undiagnosed case of diabetes for every diagnosed case.

Individuals with diabetes have death rates twice that of the general United States population. They are also disproportionately affected by disability at rates two to three times higher than reported by individuals without diabetes (NHIS). In addition to the increased morbidity and mortality that occur in individuals with diabetes, the financial costs to patients and to society are great. Individuals with diabetes have two to five times higher per capita total medical expenditures and per capita out-of-pocket expenditures than people without diabetes. Health care costs for diabetes are estimated at approximately $92 billion in 1992 dollars.

A landmark study, the Diabetes Control and Complications Trial, established the benefits of intensive therapy to maintain glucose control for individuals with Type I diabetes. A second landmark study, the United Kingdom Prospective Study of Diabetes published in 1998, also established that similar benefits of intensive therapy occur for patients with Type II diabetes. Based on these studies it is recommended that patients be monitored using hemoglobin HbA1c levels, a measure of glucose control over the past two to three months.

Persons with diabetes have a high rate of macrovascular disease and those with the disease have a high mortality rate. This complication of diabetes is thought to be attributed to a high level of risk factors such as high cholesterol or trigyclerides (lipids) and to other biological factors intrinsic to diabetes. High lipid levels are modifiable risk factors and should be monitored. Having a lipid profile performed is the first step in good lipid management.

Persons with diabetes also suffer from microvascular complications associated with the disease, such as retinopathy. High HbA1c levels are linked to the development of retinopathy. Control of HbA1c levels and eye examinations which detect and allow appropriate treatment of retinopathy can in many cases, prevent or greatly reduce visual impairment.

Several organizations have published evidence based guidelines for screening, monitoring, and treatment of persons with diabetes. The American Diabetes Association's guidelines are updated annually and are available on its website, www.diabetes.org.

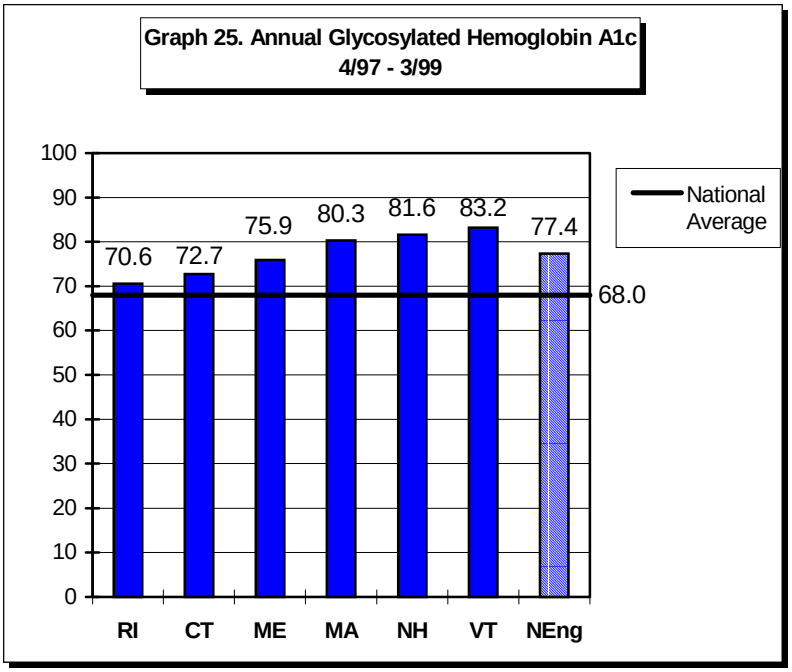
Based on this information presented above, HCFA selected the following quality indicators for diabetes:

1) The proportion of patients having annual hemoglobin A1c (HbA1c) monitoring

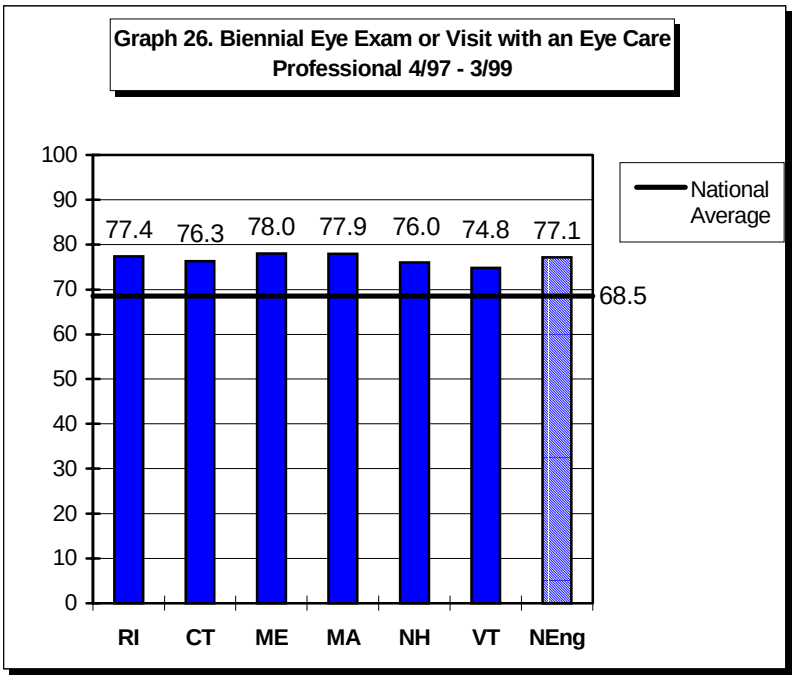
2) The proportion of patients having biennial lipid profile

3) The proportion of patients having a biennial eye exam

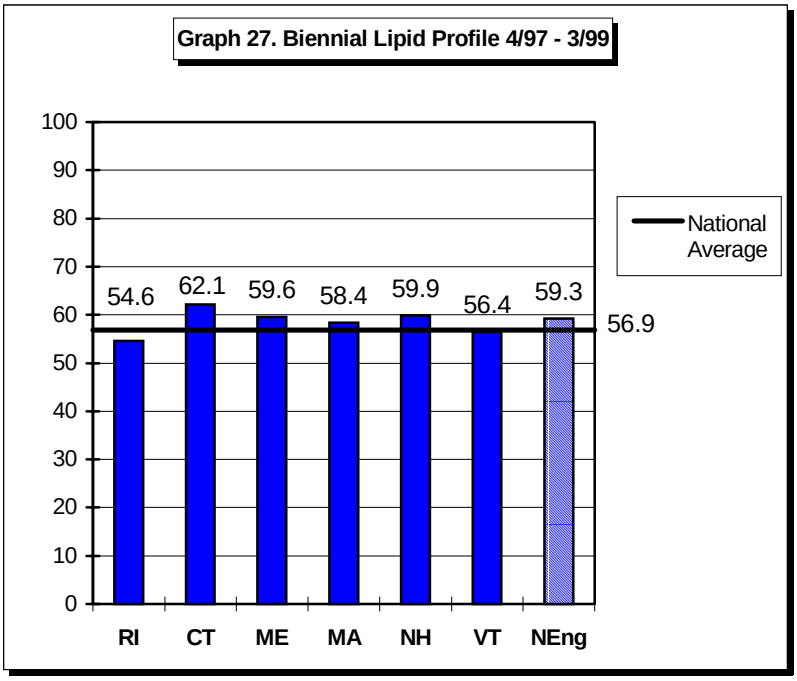
The baseline data for these indicators are from claims for dates of service between April 1, 1997 and March 31, 1999, paid by Medicare for FFS patients.




The Rhode Island rate of HbA1c testing, at 70.6%, is lower than the New England average (77.4%).




The Rhode Island rate of 77.4% is consistent with the New England average (77.1%). New England is significantly higher than the nation at 68.5%.




The rate of biennial lipid profiles in Rhode Island (54.6%) is significantly below all of the New England states except Vermont (56.4%). The New England average (59.3%) is significantly higher than the national average (56.9%).

## Summary

This report has provided the reader with a snapshot of the quality of care provided in Rhode Island as compared with the New England States and the nation as a whole. Rhode Island can be proud of its comparative standing on a number of the clinical measures. At the same time, these data point to a number of opportunities for improvement.

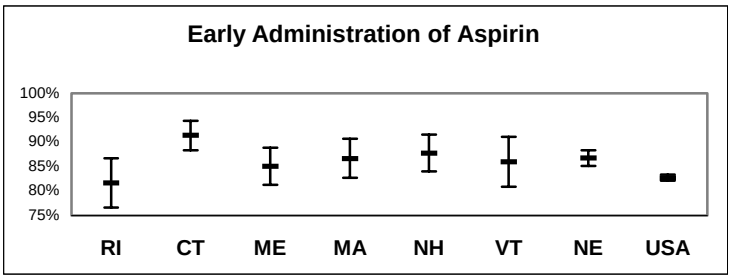
Since February 2000, hospitals and physician communities have been using this information to augment ongoing improvement efforts and to identify additional focus areas. They are supported in their efforts by their professional associations, the Hospital Association of Rhode Island, the Rhode Island Medical Society, and by RIQP, the local organization responsible for assuring that ongoing attention is paid to improving quality of care on behalf of the Medicare program. In addition, many other groups and individuals related to the state's health care delivery system and consumer groups have joined in this effort.

A planned subsequent report on clinical quality of care to be published under the Health Quality Performance Measurement and Reporting Program law will provide an update on the hospital community's performance and will be a measure of the impact of their efforts being implemented today. Many of the inpatient hospital indicators will be similar to those reported in this material. This report will be available in 2002.

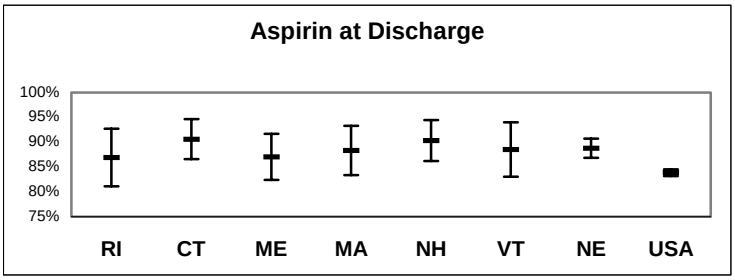
## Technical Appendix

The following graphs present the estimated rates for each of the measures, with the associated 95% confidence interval, based on the sample of cases reviewed. Confidence intervals provide information on how much error is likely to be contained in the estimated rate. It tells us that the true rate is within the interval around the estimated rate. The shorter the vertical line, the more sure one can be of the estimated rate. Any overlap of the vertical lines means the difference is not statistically significant.

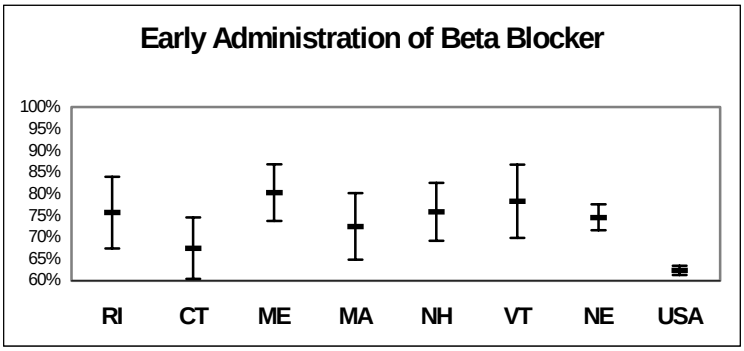
The confidence intervals are presented below for each of the indicators.



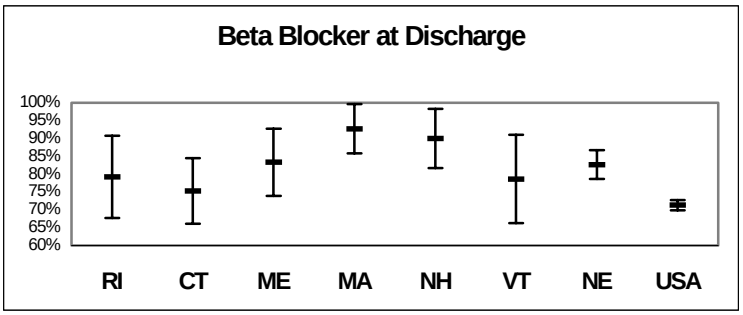

Rhode Island at 82% is significantly lower than Connecticut at 91%, but does not differ from New England as a whole. New England at 87% is significantly better than the nation at 83%.



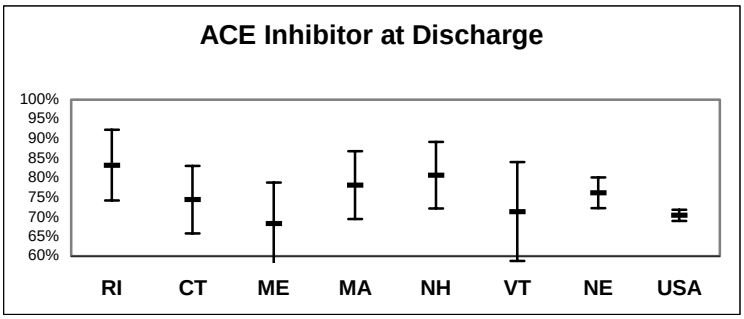

There is no significant difference among any of the New England states. New England at 89% is significantly higher than the nation at 84%.



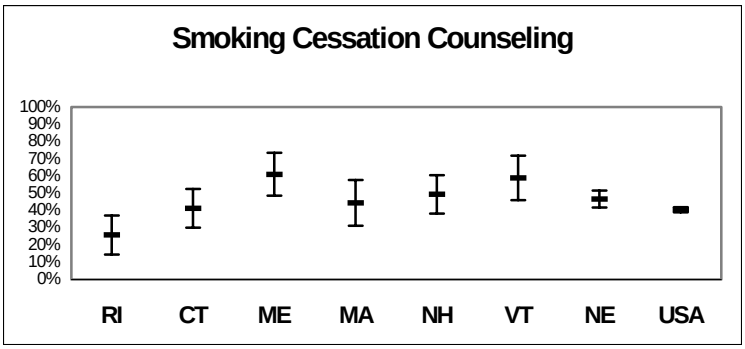

There is no significant difference among any of the New England states. New England at 75% is significantly higher than the nation at 62%.



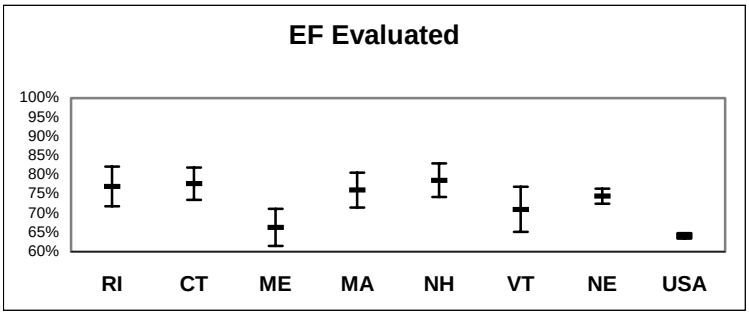

Overall there is no significant difference among any of the New England states. Connecticut is marginally lower and Massachusetts marginally higher. New England at 83% is significantly higher than the nation at 71%.



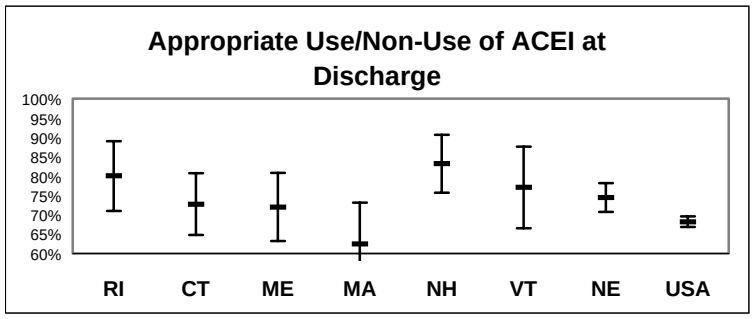

There is no significant difference among any of the New England states. New England at 76% is significantly higher than the nation at 71%.



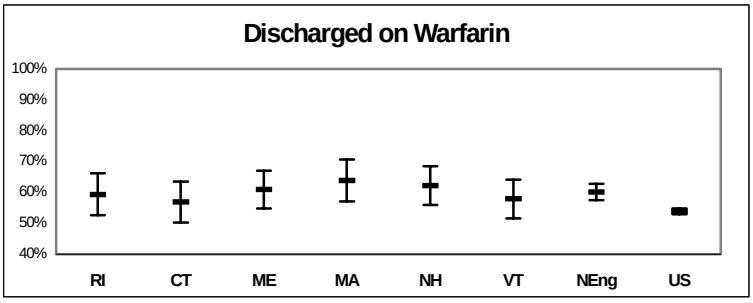

Maine and Vermont have significantly higher rates than Rhode Island. New England, at 47%, is significantly higher than the nation at 40%.



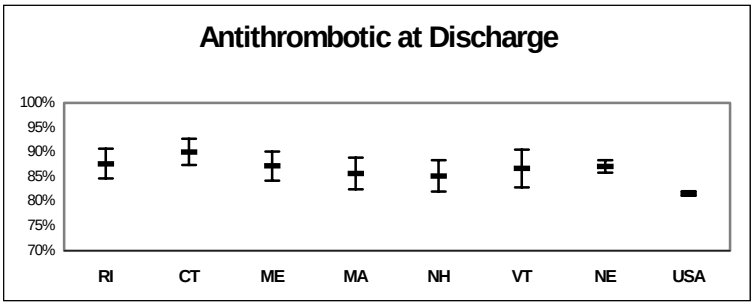

Maine has significantly lower rates than most other New England states. New England at 75% is significantly higher than the nation at 64%.



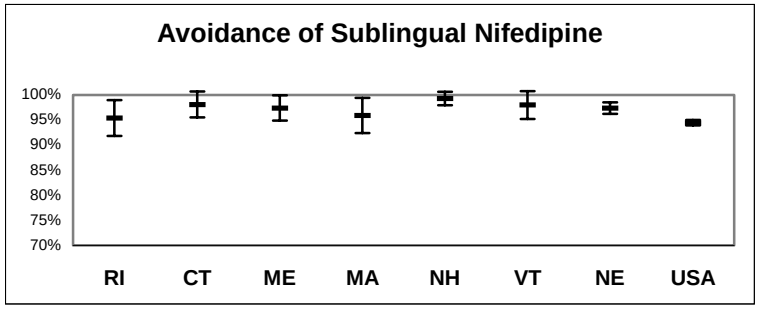

Overall there is no significant difference among any of the New England states. The difference between MA (63%) and New Hampshire (83%) is of borderline significance. New England at 74% is marginally higher than the nation at 68%.



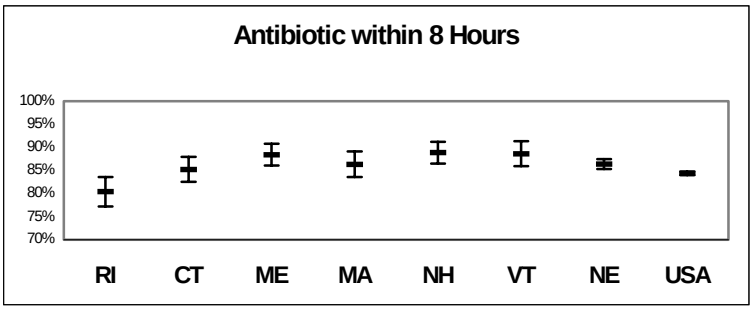

There is no significant difference among any of the New England states. New England at 60% is significantly higher than the nation at 54%.



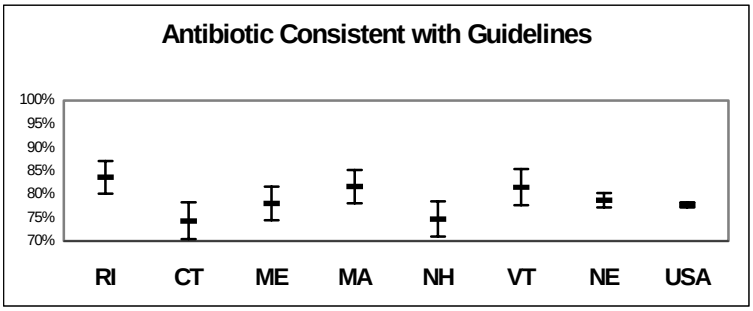

There is no significant difference among any of the New England states. New England at 87% is significantly higher than the nation at 82%.



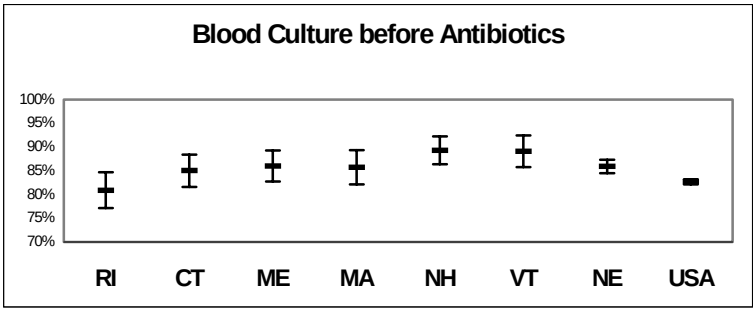

There is no significant difference among any of the New England states. New England at 97% is significantly higher than the nation at 94%.



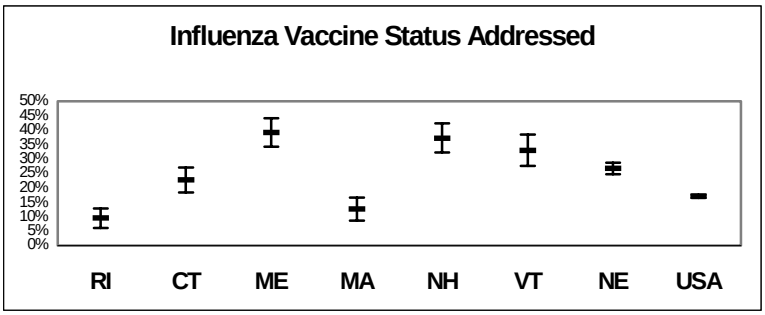

Maine, New Hampshire and Vermont have significantly higher rates than Rhode Island. Rhode Island at 80% is significantly lower than New England as a whole at 86%. New England and the nation are essentially the same.



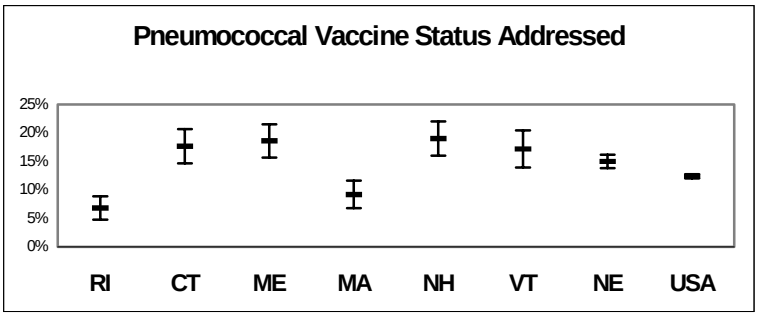

Rhode Island (84%) is significantly better than Connecticut (74%) and New Hampshire (75%). New England and the nation are essentially the same.



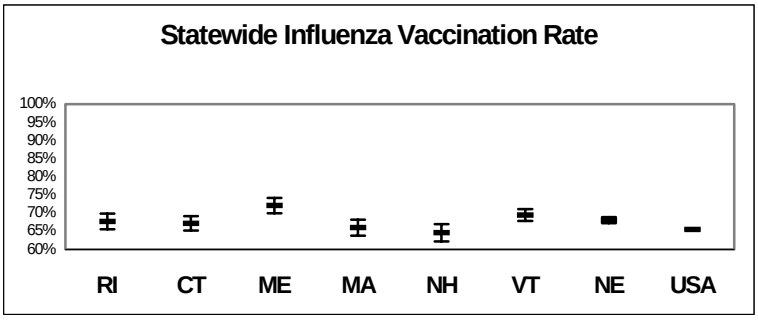

New Hampshire (89%) and Vermont (89%) are significantly higher than the rest of New England. New England at 86% is significantly higher than the nation at 83%.



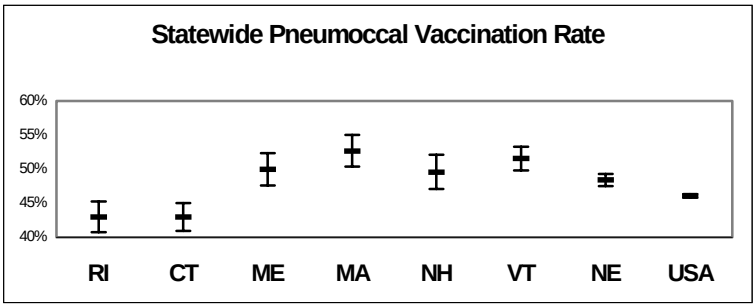

Rhode Island (10%) and MA (13%) are significantly lower than New England as a whole. Maine (39%) and New Hampshire (37%) are significantly higher. New England at 27% is significantly higher than the nation at 17%.



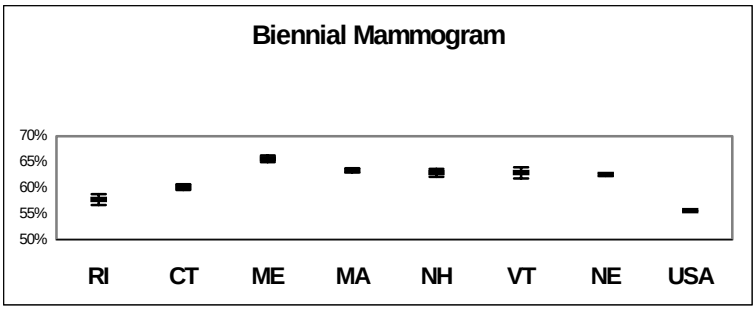

Rhode Island (7%) and MA (9%) are significantly lower than New England as a whole. New England at 15% is significantly higher than the nation at 12%.



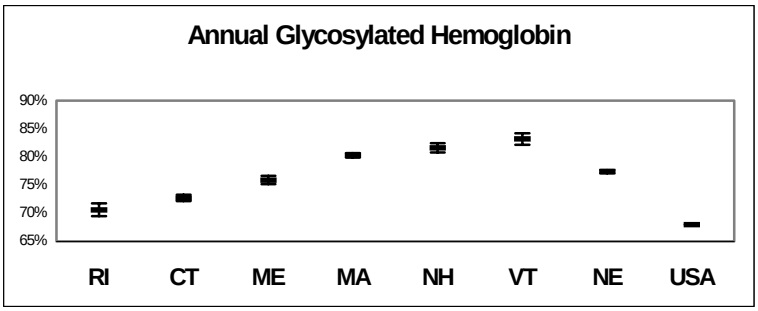

Maine at 72% is significantly higher than New England as a whole. New England at 68% is significantly higher than the nation at 66%.



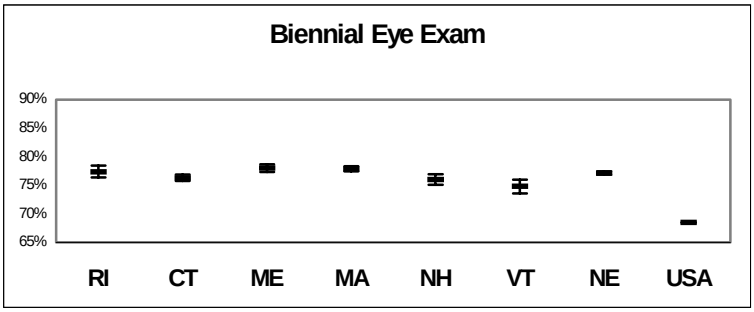

Rhode Island ( 43%) and Connecticut (43%) are significantly lower than New England as a whole. New England at 48% is significantly higher than the nation at 46%.



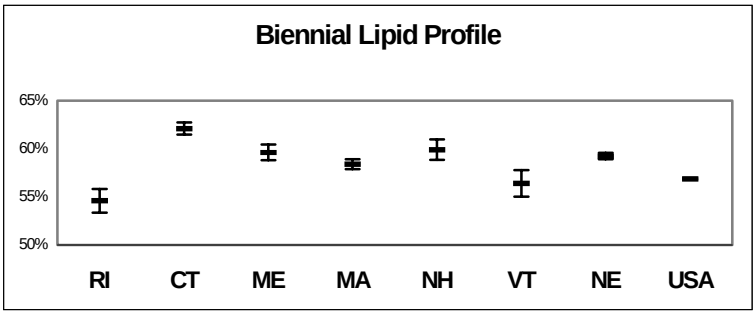

Rhode Island ( 58%) and Connecticut (60%) are significantly lower than the rest of New England. New England at 63% is significantly higher than the nation at 56%.




Rhode Island (71%) and Connecticut (73%) are significantly lower than the rest of New England. MA (80%), New Hampshire (82%) and Vermont (83%) are significantly higher. New England at 77% is significantly higher than the nation at 68%.




There is essentially no difference among the New England states. New England at 77% is significantly higher than the nation at 68%.




Rhode Island (55%) is significantly lower than most other New England states except Vermont. New England at 59% is significantly higher than the nation at 57%.

**Appendix A**

**Quality Indicator Specifications and Contraindications**

Each quality indicator has unique clinical and measurement characteristics requiring an individualized approach to inclusion and exclusion criteria for analysis. This appendix summarizes the criteria used to develop the cohort of ideal candidates for each indicator.

## A. AMI

AMI cases were identified through Medicare Part A claims files. Records were selected by principal diagnosis ICD-9-CM codes 410.XX with the exception of codes 410.X2. Specific inclusion and exclusion criteria are listed below for each indicator.

Criteria for identification of patients with confirmed AMI

1) **Acute MI confirmed by enzymes alone (any one of the following):**

   a) LDH: Peak LDH within first 48 hours after arrival > 1.5 times LDH upper limit of normal, and $LDH_1$ on peak LDH > $LDH_2$ on peak LDH, **OR**

   b) Peak CK-MB > 5 %, **OR**

   c) Troponin: Troponin I (within first 48 hours after arrival) greater than the upper limit of normal, or troponin T (within first 48 hours after arrival) greater than the upper limit of normal **OR**

2) **Acute MI confirmed by at least two of the following:**

   a) Two-fold elevation of Peak CPK: Peak CPK > 2 times above CK-upper limit of normal, or

   b) Presence of chest pain within 48 hours of arrival, or

   c) Acute MI on ECG, defined as any of the following:
      ST elevation ($\geq$ 1mm) in 2 contiguous leads, or
      MI/Injury (exclude old MI) on any ECG during current hospital stay, or
      New Q waves, or ST segment elevation, or left bundle branch block on arrival ECG

## Early Aspirin Administration

For all patients with confirmed AMI:

***Exclude cases:***

Received in transfer from another hospital or another emergency department
Discharged, expired, or transferred on the day of admission

***All remaining cases are appropriate for consideration of aspirin therapy early during hospitalization (aspirin indicated)***

Ideal cases for aspirin administration early during admission:

***Exclude cases with one or more of the following relative contraindications:***

- Allergy to aspirin
- Bleeding on admission
- History of internal bleeding
- History of bleeding disorder/coagulopathy
- Chronic liver disease
- Admission platelet count < 100 x $10^9$/L
- Anemia (admission Hct < 30% or admission Hgb < 10mg/dl)
- Treatment with warfarin on admission
- History of peptic ulcer disease
- Admission creatinine > 3 mg/dl

**Criterion:**

A case meets the quality indicator if aspirin is received within the first 24 hours of arrival to the hospital or aspirin was taken within 24 hours prior to arrival.

## Aspirin Prescription at Discharge

For all patients with confirmed AMI:

***Exclude cases:***

Transferred to another acute care hospital
Expired during the index admission

***All remaining cases are appropriate for consideration of aspirin therapy at discharge (aspirin indicated)***

Ideal cases for aspirin at discharge:

***Exclude cases with one or more of the following relative contraindications:***

- Allergy to aspirin
- Reaction to aspirin during index admission
- Bleeding on admission
- History of internal bleeding
- History of bleeding disorder/coagulopathy
- Hemorrhage/bleed during index admission
- Chronic liver disease
- Platelet count < 100 x $10^9$/L
- Anemia (Hct < 30% or Hgb < 10mg/dl)
- Creatinine level > 3 mg/dl
- History of peptic ulcer disease
- Acute upper gastrointestinal disorder during index admission
- Treatment with warfarin at discharge

**Criterion:**

A case meets the quality indicator if aspirin is prescribed at discharge

## Early Administration of Beta blockers

For all patients with confirmed AMI:

***Exclude cases:***

Received in transfer from another hospital or another emergency department
Discharged, expired, or transferred on the day of admission.

***All remaining cases are appropriate for consideration of beta blocker therapy early during hospitalization (beta blockers indicated)***

**Ideal cases for beta blocker administration early during admission:**

***Exclude cases with one or more of the following relative contraindications:***

- Allergy to beta-blockers
- Bradycardia on admission (first pulse < 60) and not on beta blocker prior to arrival
- Systolic blood pressure < 100 mm Hg on admission
- Heart failure on admission
- Shock on admission
- PR interval >0.24 seconds on admission ECG

- Second or third degree heart block on admission ECG
- Bifascicular block on admission ECG
- History of COPD
- History of asthma
- History of peripheral vascular disease
- History LVEF < 50

**Criterion:**

A case meets the quality indicator if a beta blocker is received within the first 24 hours of arrival to the hospital.

## Beta Blocker Prescription at Discharge

For all patients with confirmed AMI:

***Exclude cases:***

Transferred to another acute care hospital
Expired during the index admission

***All remaining cases are appropriate for consideration of beta blocker therapy at discharge***

Ideal cases for beta blocker at discharge:

***Exclude cases with one or more of the following relative contraindications:***

- Allergy to beta blockers
- Reaction to beta blocker during index admission
- Bradycardia during index admission
- Last pulse < 50 and did not receive beta blocker on discharge
- CHF/pulmonary edema on arrival and LVEF < 50 described as depressed to any degree
- CHF on first chest x-ray and LVEF < 50 or described as depressed to any degree
- Pulmonary edema on first chest x-ray and LVEF < 50 or described as depressed to any degree

**Criterion:**

**A case meets the quality indicator if a beta blocker is prescribed at discharge.**

## ACE Inhibitor at Discharge for Low LVEF

For all patients with confirmed AMI:

***Exclude cases:***

Transferred to another acute care hospital
Expired during the index admission

***Cases appropriate for consideration of ACE inhibitor therapy at discharge***

LVEF < 40%

Ideal cases for ACE inhibitor therapy at discharge:

***Exclude cases with one or more of the following relative contraindications:***

- Allergy ACE inhibitors
- Reaction to ACE inhibitor during hospitalization
- Aortic stenosis
- Serum creatinine > 2 mg/dL
- Systolic BP < 100 mm Hg at discharge and not discharged on an ACE inhibitor

**Criterion:**

A case meets the quality indicator if an ACE inhibitor is prescribed at discharge.

### Smoking Cessation Counseling

For all patients with confirmed AMI:

***Include only cases with:***

History of cigarette use within the year prior to arrival

***Exclude cases:***

Discharged to another acute care hospital
Expired during hospitalization

**Criterion:**

A case meets the quality indicator if the patient was advised or counseled on smoking cessation.

## HEART FAILURE

The quality indicators are based on evaluation and treatment recommendations contained in the Agency for Health Care Policy and Research (AHCPR) Clinical Practice Guideline *Heart*

*Failure: Evaluation and Care of Patients with Left-Ventricular Systolic Dysfunction*[4], American College of Cardiology/American Heart Association Task Force Report Guidelines for the Evaluation and Management of Heart Failure[5], and review of over 80 PRO heart failure projects as well as expert input from an American Heart Association Work Group. The following criteria identify the cohort of patients for each indicator.

The sample includes inpatient fee-for-service Medicare beneficiaries discharged from 7/1/98 to 12/31/98. Criteria for identification of patients with confirmed heart failure include a principal discharge diagnosis with one of the following ICD-9-CM codes:

402.01
402.11
402.91
404.01
404.11
404.91
428.x

**All of the indicators exclude the following:**

1) Transfer to another acute care hospital
2) Procedure codes indicating dialysis (ICD-9-CM codes 39.95 or 54.98)
3) Discharges against medical advice
4) Readmissions

Specific inclusion and exclusion criteria for each indicator are listed below.

## Provider Performance Indicator 1: Proportion of eligible discharges not admitted on angiotensin-converting enzyme inhibitor (ACEI)[3] or angiotensin-receptor-blocker (ARB)[4] with ejection fraction (EF) evaluated before or during admission.

***Inclusion criteria:***
Alive at discharge

***Exclusion criteria:***
Admitted on ACEI or ARB
Discharge plan for LVF evaluation after discharge

***Denominator:*** Number in sample after exclusion and inclusion criteria applied

***Numerator:*** Those in denominator with EF evaluation documented in medical record

[4] AHCPR Publication No. 94-0612, June 1994.

[5] JACC 1995; 26:1376-98.

Documentation of EF = Quantitative or qualitative inpatient or pre-admission lab or physician report of ejection fraction **OR** chart evidence that EF evaluation performed during hospitalization but results not available at time of discharge.

### Provider Performance Indicator 2: Proportion of discharges not admitted on ACEI or ARB with documented left ventricular systolic dysfunction (LVSD) who:

1) are discharged on ACEI; OR
2) have documented reason for not being on ACEI

***Inclusion criteria:***
In numerator of PPI-1
Documented LVSD: EF <40%
if no quantitative report of EF, narrative report of reduced EF

***Exclusion criteria:***
On ARB but not ACEI at discharge[5]
Chart evidence that EF evaluation performed during hospitalization but results not available at time of discharge
Chart documentation of participation in a clinical trial testing alternatives to ACEI as first-line heart failure therapy

***Denominator:*** Number in this sample after exclusion and inclusion criteria applied

***Numerator:*** Those in denominator who meet at least one of the following conditions:

1) On ACEI at discharge; **OR**
2) Chart documentation of one or more of the following absolute contraindications to ACEI use:

    a) moderate or severe aortic stenosis;
    b) bilateral renal artery stenosis;
    c) history of angioedema, hives, or severe rash with ACEI use; **OR**

3) Physician documentation of any specific reason why ACEI is not used.

## ATRIAL FIBRILLATION

The quality indicator for atrial fibrillation (AF) is based on guidelines published by the American Heart Association, the National Stroke Association, and results of randomized controlled clinical trials.

***Atrial fibrillation cases were identified from Medicare Part A data meeting the following criteria:***

1) Principal or secondary discharge diagnosis of AF (ICD-9-CM code: 427.31).
2) Confirmed AF by physician documentation on day of arrival or during the hospital stay.
3) The presence of physician documentation of artrial fibrillation at discharge or documentation of intermittent artrial fibrillation.

***Excluded from this pool (the denominator), are patients who were:***

1) Transferred to another acute care hospital.
2) Discharged against medical advice.
3) Expired in hospital.

## Warfarin at discharge from hospital

***From the pool of all patients with confirmed AF, exclude cases from the denominator with one or more of the following contraindications:***

- Lone atrial fibrillation
- Planned surgery within 7 days following discharge from hospital
- Physician documentation of risk for falls
- Alcoholism/drug abuse (history or current)
- Dual chamber pacemaker (history or current)
- Schizophrenia/active psychosis (history or current)
- Terminal illness (life expectancy less than 6 months)
- Terminal /comfort care
- Allergy to warfarin
- Complications related to warfarin (history or current)
- Bleeding disorder
- Warfarin discontinued during hospitalization and not restarted
- Endocarditis/pericarditis (within 6 months prior to hospitalization or current
- Extensive/metastatic cancer (history or current)
- Seizures (history or current)
- Malignant hypertension (history or current)
- Hemorrhagic stroke (history or current)
- Peptic ulcer (current)
- Intracranial surgery/biopsy (current)
- Hemorrhage – any type (history and current)
- Physician documented rational for not prescribing warfarin:

    1. High risk for bleeding
    2. High risk for falls
    3. Altered mental status

4. Liver disease.
5. Terminal illness.
6. Patient refused, reason not specified
7. Patient refused, did not want risk
8. Discontinued due to bleeding
9. On aspirin as a regular medication
10. Arthritis requiring NSAIDS or aspirin

**Criterion:**

A case passes the quality indicator if warfarin is prescribed at discharge or if documentation shows a plan to begin warfarin after discharge. The numerator includes "ideal" patients (in the denominator) who are prescribed warfarin at hospital discharge.

## B. STROKE

Quality indicators (QIs) are based on evaluation and treatment recommendations from guidelines published by the American Heart Association, the National Stroke Association, AHCPR's Stroke PORT, and from results of randomized controlled clinical trials. QI selection also involved QIs for Stroke/TIA developed in consultation with local experts in 27 states undertaken during HCFA's previous contract with peer review organizations (PROs) and through work done on HCFA's national modules for Stroke/TIA and Atrial Fibrillation. The following criteria identify the cohort of patients for each quality indicator.

The sample includes inpatient fee-for-service Medicare beneficiaries discharged from 7/1/98 to 12/31/98. Criteria for identification of patients with confirmed ischemic stroke/TIA include a principal discharge diagnosis with one of the following ICD-9-CM codes:

**Ischemic CVA**

433.xx
434.xx
435.0
435.1
435.3
435.8
436

**TIA**

362.34
435.9

Specific inclusion and exclusion criteria for each indicator are listed below.

## Proportion of Stroke/TIA Patients with Antithrombotic Prescribed at Discharge

***Inclusion criteria*:**

Confirmed diagnosis of stroke/TIA
Discharged alive

***Exclusion criteria:***

Discharged against medical advice
Transferred to acute care
Patient refusal

Exclusions for aspirin, ticlopidine, clopidogrel, dipyridamole and warfarin which include:

- allergy to all of the medications
- bleeding disorder
- physician documentation of risk for bleeding
- peptic ulcer (current)
- terminal/comfort care
- CVA, hemorrhagic (history or current)
- brain/CNS cancer (history or current)
- extensive/metastatic cancer (history or current)
- terminal illness (life expectancy less than 6 months)
- hemorrhage (any type)
- intracranial surgery/biopsy (current)
- planned surgery within 7 days following discharge
- physician documentation an anticoagulant/antiplatelet was considered but not prescribed
- complication related to anticoagulation (history or current)
- unrepaired intracranial aneurysm (history or current)

**Criterion:**

A case passes the indicator if at least one of the following conditions are met:

a) Patients in denominator with aspirin, ticlopidine, clopidogrel, dipyridamole or warfarin prescribed at discharge; **OR**

b) Patients in the denominator with physician plan for aspirin, ticlopidine, clopidogrel, dipyridamole or warfarin after discharge.

## Avoidance of Sublingual Nifedipine in Patients with Acute Stroke

***Inclusion Criteria:***

Blood pressure within the first 24 hours > 140 mmHg systolic or > 90 mmHg diastolic
Confirmed diagnosis of acute stroke
Symptom onset or change in symptoms on the day of arrival or one day prior to arrival

***Exclusion Criterion:***

TIAs (symptoms less than one hour duration or not present on arrival)

**Criterion:**

A case passes the indicator if those in the denominator did not receive sublingual nifedipine within the first 24 hours.

# C. PNEUMONIA

The quality indicators were developed by HCFA with the input of a panel of clinical experts. Members of HCFA's expert panel represent the American Thoracic Society, the Infectious Diseases Society of America, and the Pneumonia Patient Outcomes Research Team. Each quality indicator applies unique inclusion and exclusion criteria for analysis. The following criteria identify the cohort of patients for each indicator.

Pneumonia cases were identified from Medicare Part A claims files with any of the following ICD-9-CM codes:

480.0 through 483.99, 485 through 486.99 (pneumonia), or 487.0 (influenza with pneumonia).

**OR**

Principal discharge diagnosis code of 038.XX (septicemia) AND a secondary diagnosis code of 480.0--483.99; 485--486.99; or 487.0.

**OR**

Principal discharge diagnosis code of 518.81 (respiratory failure) AND a secondary diagnosis code of 480.0--483.99; 485--486.99; or 487 files.

All of the indicators exclude the following:

1) Patients who were transferred from another acute care hospital.
2) Patients who were receiving comfort care only.
3) Patients without a working diagnosis of pneumonia during the hospital stay

Specific inclusion and exclusion criteria for each indicator are listed below.

## Initial Antibiotic Dose within 8 Hours of Hospital Arrival

***Inclusion criteria:***

Study sample as defined above.

***Additional exclusion criteria:***

Initial dose of antibiotic administered more than 36 hours after hospital arrival.
Insufficient or missing data to assess the time between initial arrival and administration of first antibiotic dose.

**Criterion**:

A case passes the quality indicator if the first hospital antibiotic dose was administered in 8 hours or less (≤480 minutes).

## *Initial Antibiotics Consistent with Current Recommendations**

***Inclusion criteria:***

Study sample as defined above.

***Additional exclusion criteria:***

Immunosuppressive or antineoplastic therapy.
HIV/AIDS, or leukemia/lymphoma.
Immunosuppression.
Initial dose of antibiotic administered more than 36 hours after arrival.
Hospitalization within 14 days prior to index hospital admission.
Insufficient or missing data on antibiotic administration, e.g. no antibiotic administration date or time recorded.

*Current recommendations are from HCFA's National Expert Panel. These recommendations are largely based on the guidelines for community-acquired pneumonia from the American Thoracic Society and the Infectious Diseases Society of America. Typical antibiotics included in each category include:

ß-lactam category- cefuroxime (Kefurox, Zinacef); ceftriaxone (Rocephin); cefotaxime (Claforan); cefepime (Maxipime); ampicillin-sulbactam (Unasyn); piperacillin-tazobactam (Zosyn); imipenem-cilastatin (Primaxin); Meropenem (Merrem).
Macrolide category- erythromycin; clarithromycin (Biaxin); or azithromycin (Zithromax).
Quinolone category - ciprofloxacin (Cipro); ofloxacin (Floxin); levafloxacin (Levaquin); grepafloxacin (Raxar); sparfloxacin (Zagam); trovofloxacin (Trovan).

**Criterion:**

A case passes the quality indicator if choices of initial antibiotics given within 24 hours of hospital arrival are consistent with guidelines.

## Blood Cultures Collected Prior to Initial Antibiotic Administration

***Inclusion criteria:***

Study sample as defined above.

***Additional exclusion criteria:***

No blood cultures obtained.
Insufficient or missing data to assess whether blood cultures were collected prior to the first antibiotic dose.

**Criterion**:

A case passes the quality indicator if blood cultures were collected prior to the first hospital antibiotic dose.

## Pneumonia Patients Screened or Given Influenza Vaccination

***Inclusion criteria:***

Study sample as defined above.
Discharged during the months of October, November, or December.
Discharged alive.

***Additional exclusion criteria:***

Discharged between Jan 1 and September 30, i.e. not within the defined influenza vaccination season.

Principal or secondary discharge diagnosis of pneumonia with influenza (ICD-9-CM code 487.0).

**Criterion**:

A case passes the quality indicator if documentation shows that the patient was screened for influenza vaccination status, received the influenza vaccine prior to arrival or influenza vaccine was ordered or given during the hospital stay.

**Pneumonia Patients Screened or Given Pneumococcal Vaccination**

***Inclusion criteria:***

Study sample as defined above
Discharged alive

***Additional exclusion criteria:***

Expired in hospital

**Criterion:**

A case passes the quality indicator if documentation shows that the patient was screened for pneumococcal vaccination status, received the pneumococcal vaccine prior to arrival or pneumococcal vaccine was ordered or given during the hospital stay.

## D. MAMMOGRAPHY

The percentage of non-HMO female Medicare beneficiaries age 52-69 (at the end of the time period) who have had a mammogram (screening or diagnostic) during a two-year period.

Denominator = All women (continuously enrolled in Part A and Part B of Medicare for a full 24-month time period beginning January 1, 1997 or who had a lapse in coverage or were enrolled in managed care for _ 30 days each year) and who were age 50-67 years old as of January 1, 1997.

***Exclusion:***

Women who died during this period

Numerator = Those women in the denominator who had at least one Medicare-paid mammogram (screening or diagnostic) during the time period January 1, 1997 to December 31, 1998 as evidenced by:

- Physician/supplier claim with HCPCS = 76090 or 76091 or 76092 **OR**
- Inpatient, outpatient, or SNF claim with:
  - HCPCS = 76090 or 76091 or 76092 **OR**
  - ICD-9-CM procedure code = 87.36 or 87.37 **OR**
  - Revenue Center Code = 0401 or 0403 **OR**
  - Revenue Center Code = 0320 or 0400 in conjunction with breast-related ICD-9-CM diagnosis codes = 174.x, 198.81, 217, 233.0, 238.3, 239.3, 610.0, 610.1, 610.2, 611.72, 793.8, V10.3, V76.1x **OR**
  - ICD-9-CM diagnosis code = V76.11 or V76.12

***Inclusion:***

Women who received mammography during 1997 (with claims processed by March 31, 1998) or 1998 (with claims processed by March 31, 1999)

## E. DIABETES

The proportion of patients with confirmed diabetes who have had the following testing or procedures:

Annual glycosylated hemoglobin A1c (HbA1c)

Biennial lipid profile or four of four individual tests on same date.

Biennial eye exam or visit with an eye care professional

The study population for this claims-based analysis will include all Medicare beneficiaries with diabetes in the state of Connecticut. The baseline measurement period extends from 4/1/97 through 3/31/99. The follow-up measurement period extends from 7/1/99 though 6/30/01.

There are no exclusions for the diabetes measures.

**Appendix B. Acronyms**

AAFP – American Academy of Family Physicians

ACC – American College of Cardiology

ACEI – angiotensin-converting enzyme inhibitor

ACOG – American College of Obstetricians and Gynecologists

ACR – American College of Radiology

ACS – American Cancer Society

AFIB – atrial fibrillation

AHA – American Heart Association

AHCPR – Agency for Health Care Policy and Research

AMA – American Medical Association

AMI – acute myocardial infarction

ARB – angiotensin-receptor-blocker

ATS – American Thoracic Society

BRFSS – Behavioral Risk Factor Surveillance System

CHF – congestive heart failure

EF – ejection fraction

FFS – fee-for-service

HbA1c – annual hemoglobin A1c

HCFA – Health Care Financing Administration

HEALTH – Rhode Island Department of Health

HMO – Health Maintenance Organization

HQPMR – Health Quality Performance Measurement and Reporting

IDSA – Infectious Diseases Society of America

JAMA – Journal of the American Medical Association

LVEF – left ventricular ejection fraction

LVSD – left ventricular systolic dysfunction

MQIS – Medicare Quality Indicator System

NCI – National Cancer Institute

NHIS – National Health Interview Survey

PRO – Peer Review Organization

RIQP – Rhode Island Quality Partners

TIA – transient ischemic attack

USPSTF – United States Preventive Services Task Force

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